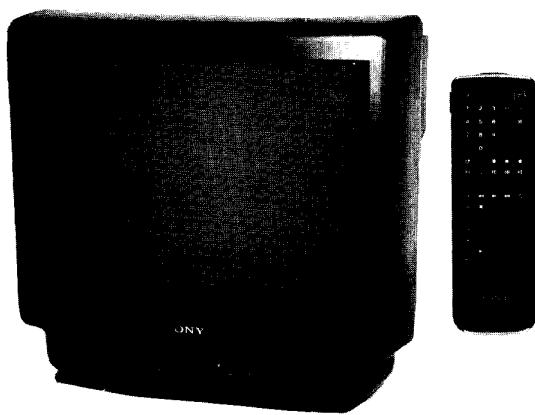


KV-M2150U/M2151U

KV-M2150L/M2151L

RM-826

SERVICE MANUAL



UK Model

KV-M2150U

Chassis No. SCC-D86N-A

KV-M2151U

Chassis No. SCC-D86M-A

Irish Model

KV-M2150L

Chassis No. SCC-D88G-A

KV-M2151L

Chassis No. SCC-D88F-A

BE-2A CHASSIS

MODELS OF THE SAME SERIES	
KV-M2150U/51U/50L/51L	KV-M2140L/M2141L
KV-M2140U/M2141U	KV-M1620L
KV-M1620U/M1621U	KV-M1420L

SPECIFICATIONS

[KV-M2150U/M2151U/M2150L/M2151L]

Television system I

Color system PAL

Channel coverage UHF: 21-69 (KV-M2150U/M2151U)

VHF : A-J UHF : 21-69

(KV-M2150L/M2151L)

Picture tube Black Trinitron tube

90° degree deflection

Approx. 54.5 cm (21 inches)

(Approx. 51.0cm picture measured diagonally)

Inputs 21-pin connector : CENELEC standard

Including RGB input

A Audio/Video input jacks : phono jacks

S-Video input

Outputs 21-pin connector : CENELEC standard

Headphones jack : minijack

Sound output 6 W (Music)

Power consumption 96W (KV-M2150U)

99W (KV-M2151U)

70.5Wh (KV-M2150L)

73.5Wh (KV-M2151L)

Dimensions

Approx. 513x477x478 mm (w/h/d)

Weight

Approx. 24 kg

【RM-826】

Remote control system infrared control

Power requirements 3V dc

2 batteries IEC designation

R6 (size AA)

Dimensions Approx. 75×221×23mm (w/h/d)

Weight Approx. 230g including batteries

Accessories supplied IEC designation R6 batters (2)

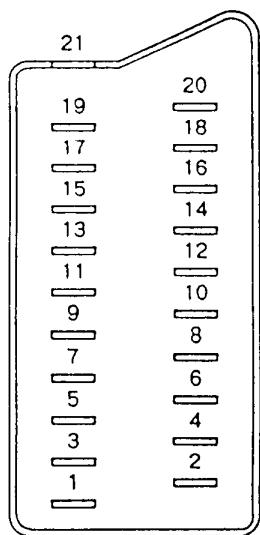
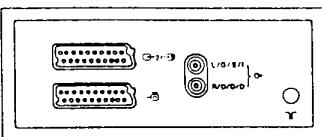
Supplied accessories RM-826 Remote Commander (1)
IEC designation R6 batteries (2)

Design and specifications are subject to change without notice.

TRINITRON® COLOUR TV
SONY®



21 pin connector ( ,  2/ )



Pin No.	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output Impedance: Less than 1kohm*
2	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	Audio output A (left)	Standard level: 0.5Vrms Output Impedance: Less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	Blue input	0.7V ± 3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5 ~ 12V): Part mode Low state (0 ~ 2V): TV mode Input Impedance: More than 10kohms Input capacitance: Less than 2 nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal: 0.7V ± 3dB, 75ohms, positive
12	○	○	Open	
13	○	○	Ground (red)	
14	○	○	Ground (blanking)	
15	○	-	Red input	0.7V ± 3dB, 75ohms, positive
	-	○	(S signal) chroma input	0.3V ± 3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1 ~ 3V) Low state (0 ~ 0.4V) Input Impedance: 75ohms
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V ± 3dB, 75ohms, positive Sync: 0.3V (-3, +10dB)
20	○	-	Video input	1V ± 3dB, 75ohms, positive Sync: 0.3V (-3, +10dB)
	-	○	Video Input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync: 0.3V (-3, +10dB)
21	○	○	Common ground (plug, shield)	

○ connected

● unconnected (open)

* at 20Hz ~ 20kHz

4 pin connector ()

Pin No.	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) Input	1V ± 3dB, 75ohms, positive Sync: 0.3V (-3, +10dB)
4	C (S signal) input	0.3V ± 3dB, 75ohms, positive

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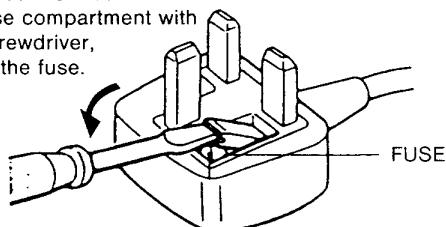
Warning

The flexible mains lead is supplied connected to a B.S. 1363 fused plug having a fuse of 5 amp capacity. Should the fuse need to be replaced, use a 5 AMP FUSE approved by ASTA to BS1362, ie carries the \oplus mark.

IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET. When an alternative type of plug is used it should be fitted with a 5 AMP FUSE, otherwise the circuit should be protected by a 5 AMP FUSE at the distribution board.

How to replace the fuse

Open the fuse compartment with the blade screwdriver, and replace the fuse.

**CAUTION**

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK Δ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

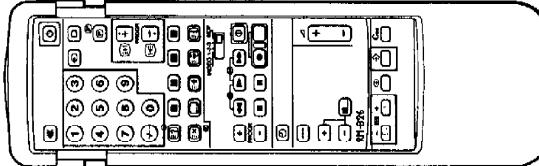
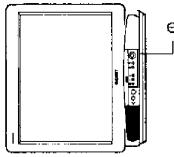
SECTION 1 GENERAL

1-1. PRESETTING OF CHANNELS

Besides viewing the TV programmes you need to preset TV channels. There are 60 spaces available for storing these channels. TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on the TV. Slide open the full-function side of the Remote Commander to reveal preset buttons.

Automatic presetting of channels

Action	Result
1 Turn on the TV using the power switch @ on the set.	You are now in the UHF preset mode. The programme number flashes.
2 Press the \Rightarrow PRESET button.	The selected programme number will be indicated.
3 Press either the number buttons or PROG R +/- to select the programme number on which you want to preset the channel.	Note: in the case of two digit numbers, first press +/-, then the two numbers.
4 Press the \oplus + or - button repeatedly, until the desired channel is tuned in.	The scale with the frequency band changes.
5 Repeat steps 3 and 4 for all other channels.	
6 Press the \Rightarrow PRESET button to store the channels.	All channels are now stored. The programme number stops flashing.



How to skip programmes

Since you have 60 programmes at your disposal, you may want to skip vacant programme positions. This means that they are skipped when you press the PROG R +/- buttons.

Action

Action	Result
1 Press the \Rightarrow PRESET button	You are now in preset mode, the programme position flashes.
2 Use PROGR + or - to select the programme position you want to skip.	The selected programme position appears.
3 Press Coo.	
4 Repeat steps 2 and 3 to skip other programmes.	
5 Press the \Rightarrow PRESET button	The programme position is now skipped. You are back in TV mode.

How to fine tune a channel manually

If the reception of a stored channel is not satisfactory, you can fine tune the channel manually.

Action

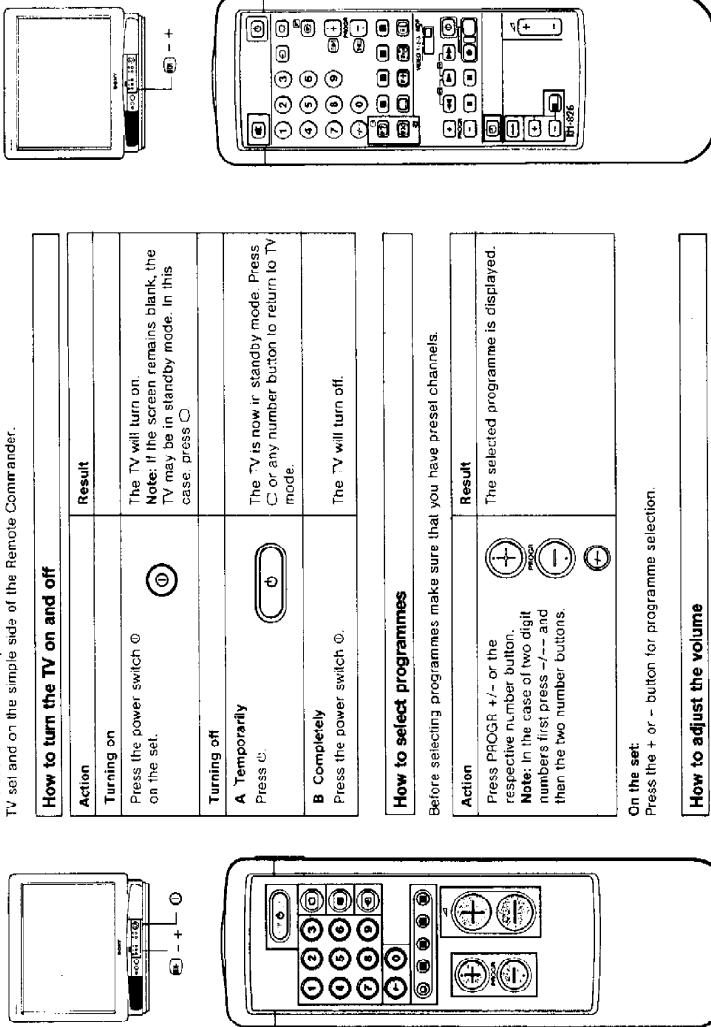
Action	Result
Press the \oplus + or - button until the reception is good.	The channel is now fine tuned.

Note: By pressing the respective programme number the automatic fine tuning will be restored.

1-2. BASIC TV OPERATION

1-3. ADVANCED TV OPERATION

This section introduces you to the advanced control functions which are available on the TV set and on the simple side of the Remote Commander.



This section introduces you to the advanced control functions which are available on the full function side of the Remote Commander

How to turn the TV on and off

Action	Result
Turning on Press the power switch on the set.	The TV will turn on Note: If the screen remains blank, the TV may be in standby mode. In this case, press .
Turning off	
A Temporarily Press .	The TV is now in standby mode. Press or any number button to return to TV mode.
B Completely Press the power switch .	The TV will turn off.

How to select programmes

Before selecting programmes make sure that you have preset channels.

Action	Result
Press PROG +/- or the respective number button.	The selected programme is displayed.
Note: In the case of two digit numbers first press +/- and then the two number buttons.	

On the set:
Press the + or - button for programme selection.

How to adjust the volume

Action	Result
Press + or -.	The volume markers will appear and the volume is adjusted accordingly.

On the set:
Press until the symbol is displayed, then adjust with the +/- buttons.

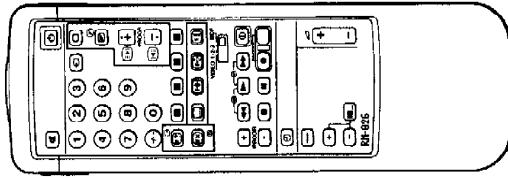
How to use additional functions

- Viewing of Teletext: (only for KV-M2151U/KV-M2151L)
Press . To return to TV mode, press .
- Viewing of the video input:
Press . To return to TV mode, press .

1-4. TELETEXT OPERATION (KV-M2151U/M2151L ONLY)

Tv stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full function side of the Remote Commander. With the simple side of the Remote Commander only the basic operation is possible.

How to view the teletext	
Action	Result
1 Select the channel which carries the teletext service you wish to view.	The channel changes on the screen.
2 Press C , E	The teletext service appears. If the teletext signal is not broadcast, P00 is displayed.
3 Input three digits for the page number using the number buttons. Note If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode: Press C .	
To change the teletext channels: First press C to return to TV mode, then repeat steps 1 to 3.	



How to		Action	Result
Superimpose the teletext display on the TV programme		Press C once if you are in 'text' mode or press C twice if in TV mode To return to the normal teletext, display press C again	The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed		Press HOLD	The HOLD symbol HOLD appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.		Press C once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	The upper half is enlarged.
Revealed concealed information (e.g answers to a quiz).		Press C (REVEAL).	The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.		Press C to conceal the information.	The numbers are entered.
		1. Request the new page. 2. Press C (TEXT CL.)	The TV programme is displayed and the requested page number and other teletext data appear at the top of the screen
		3. When the requested page has been captured, the page number remains and the other data disappears.	
		4. Press C to view this page.	The requested page is displayed.

Some of the features may not be available depending on the teletext service.

How to use the FASTEXT feature

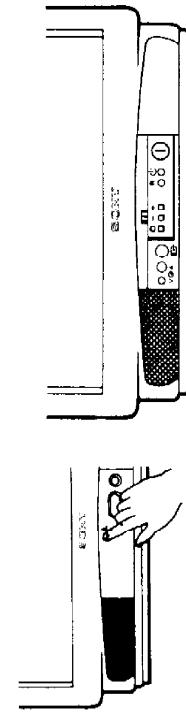
How to use the FASTEXT feature	
Operation	
Request the index page.	Press C (INDEX) The index page appears.
Access the next or preceding page.	Press C (PAGE +) or C (PAGE -). The next or preceding page appears.

Note
Correct FASTEXT operation depends on the necessary signals sent from the TV station.

1-7. ADDITIONAL INFORMATION

Parts Identification

A



A TV set - Front

This section briefly describes the buttons and controls on the TV set and on the Remote Commander.
For more information, see the separate manual.

D Remote Commander - full function side

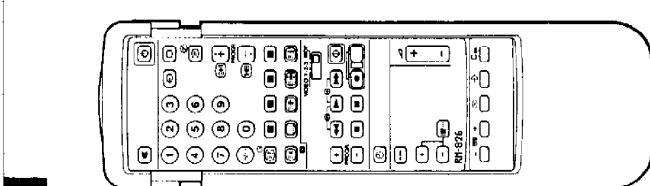
Sign	Name
①	Mute on/off button
②	Standby button
③	Input jacks Video/Audio/S-Video
④	1,2,3,4,5, 6,7,8,9, and 0 Number buttons
⑤	Function selector Programme/ volume/input)
⑥	Adjustment buttons for function selector - / +
⑦	Teletext button
⑧	Double-digit entering button
⑨	-/-
⑩	Request line display
⑪	Teletext operation buttons
⑫	Fastext buttons
⑬	On-screen display button
⑭	Sleep timer
⑮	Picture adjustment reset button
⑯	VOLUME control
⑰	PROGR +/-
⑱	Picture controls
⑲	VIDEO 1/2/3 MDP selector
⑳	Video equipment operation buttons ◀ ▶ ▲ ▼ □ ▴ ▷
㉑	Programme number clear button
㉒	Channel preset/store button
㉓	Tuning buttons - □ +

B TV set - Rear

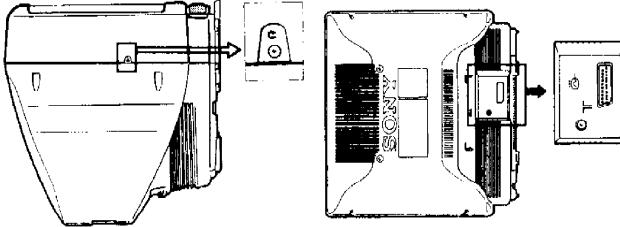
Sign	Name
l	Headphones jack
m	21-pin Euro-AV connector (RGB/ video input/TV output)
n	Aerial terminal (IEC type)

C Remote Commander - simple side

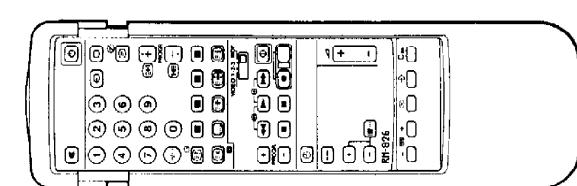
Sign	Name
①	INPUT mode selector
②	Standby button
③	Fastext buttons
④	TV mode selector
⑤	Number buttons 1,2,3,4,5, 6,7,8,9, and 0
⑥	Double-digit entering button
⑦	VOLUME control buttons
⑧	PROGR +/-



B



D



A

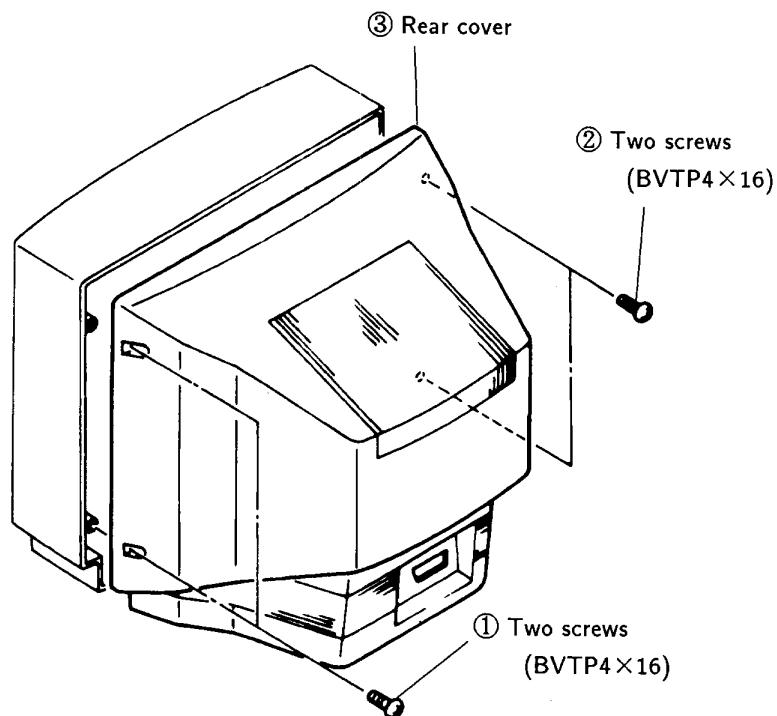
Troubleshooting

Here are some simple solutions to the problems which may affect the picture and sound

Problem	Checking and solution
No picture (screen not lit), no sound	<ul style="list-style-type: none">• Connect the set to a working outlet.• Press the power switch .• If the standby indicator  is red, press the TV button on the Commander .• Check the aerial connection.
Poor or no picture (screen not lit), but sound good	<ul style="list-style-type: none">• Adjust  and .• Press .• If  is displayed on the screen, press  on the Remote Commander.
Good picture but no sound	<ul style="list-style-type: none">• Adjust  with the + button after selecting with the .• Press .
No colour for colour programmes	<ul style="list-style-type: none">• Adjust  with the + button after selecting with the .• Press .
Show and noise	<ul style="list-style-type: none">• Check the aerial connections.

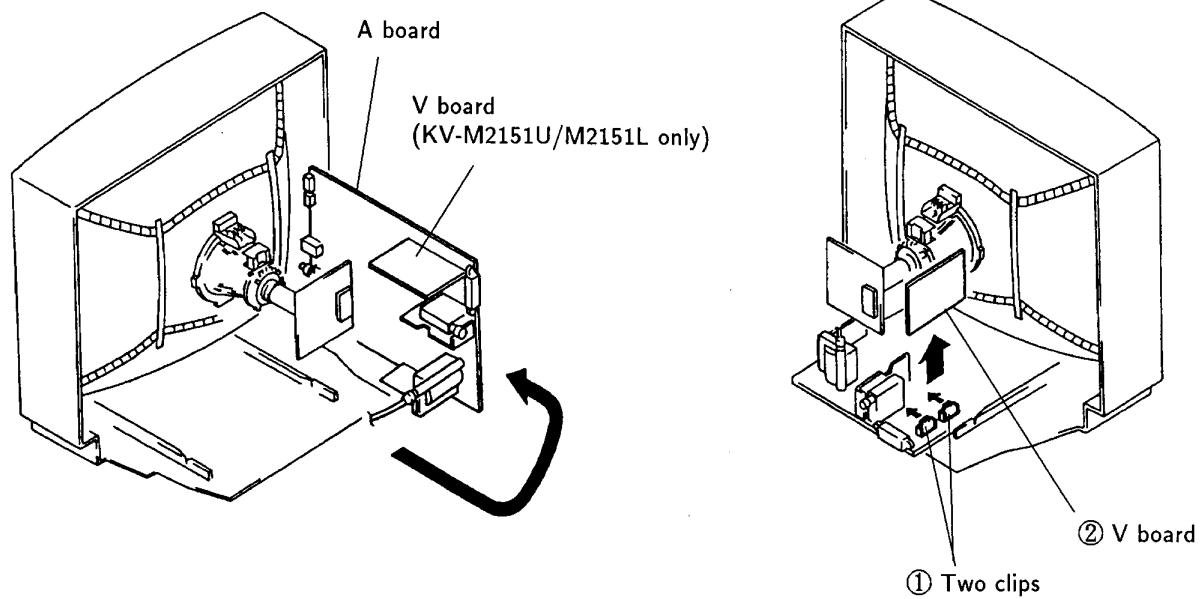
SECTION 2 DISASSEMBLY

2-1. REAR COVER REMOVAL

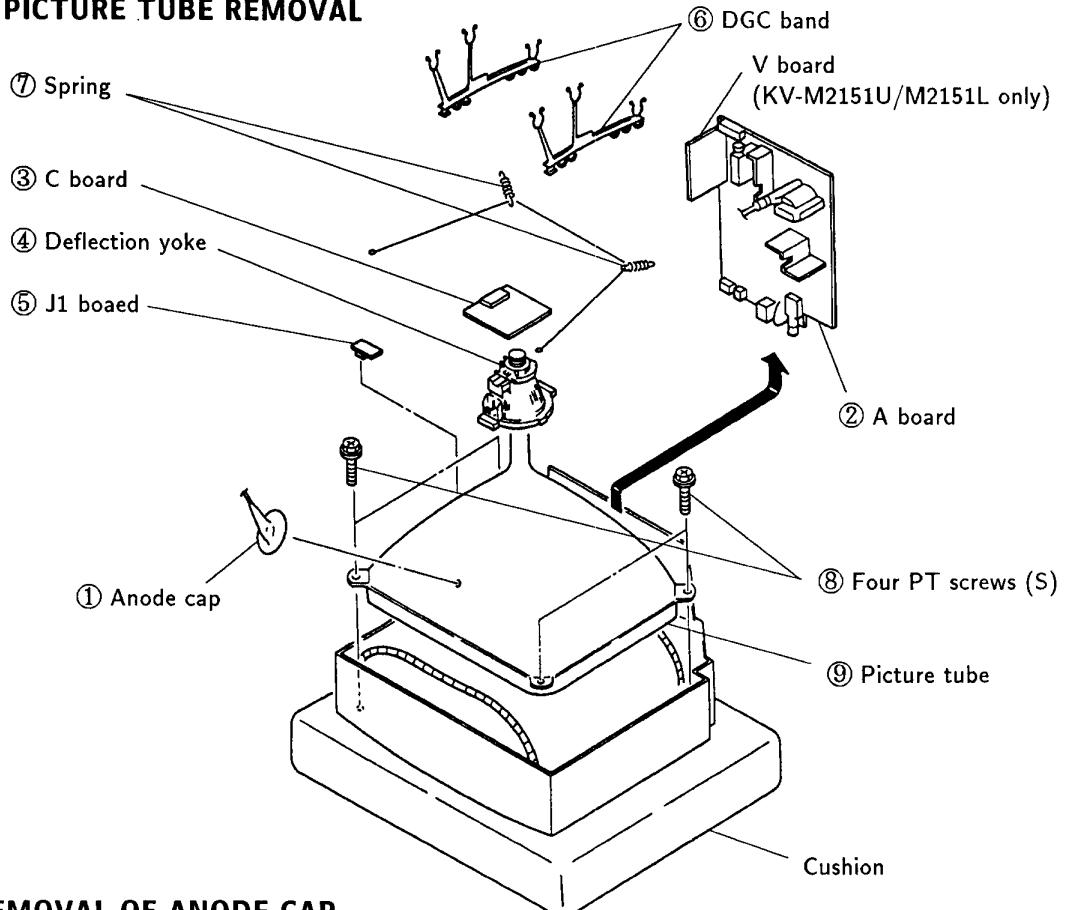


2-2. SERVICE POSITION

2-3. V BOARD REMOVAL (KV-M2151U /M2151L only)



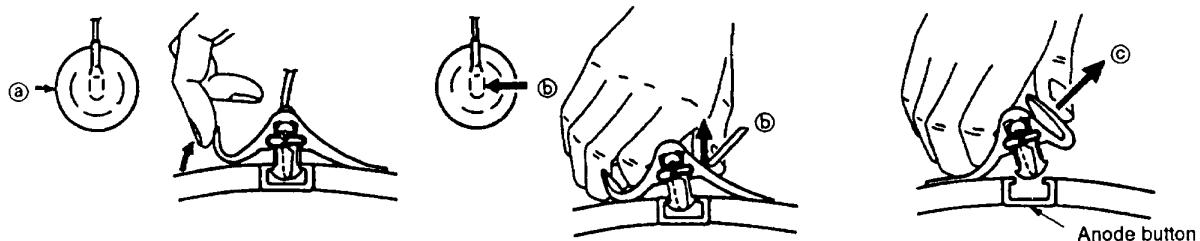
2-4. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

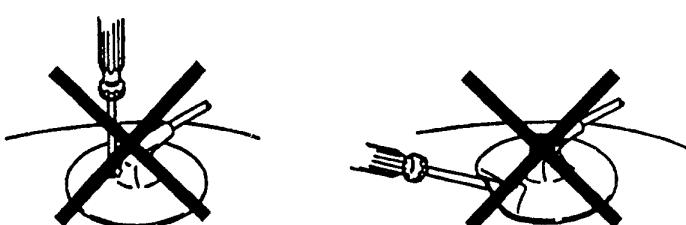
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

• REMOVING PROCEDURES



• HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted. The controls and switch below should be set as follows unless otherwise noted :

● CONTRAST control 80% (or Normal by commander)

● BRIGHTNESS control 50%

Perform the adjustments in order as follows:

Preparation:

- Set the side of the unit with the PICTURE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser..

3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.
CONTRAST } normal
BRIGHTNESS
2. Turn the raster signal of the pattern generator to red.
3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly.
(Fig.3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)
5. Switch over the raster signal to blue and green confirm the condition.
6. When the position of the deflection yoke is determined, tighten it with a deflection yoke mounting screw.
7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

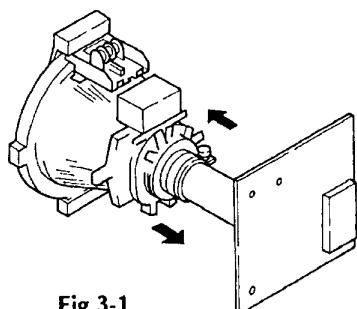


Fig.3-1

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

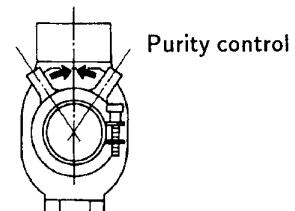


Fig.3-2

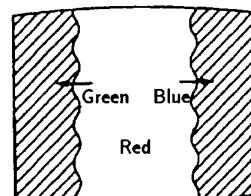


Fig.3-3

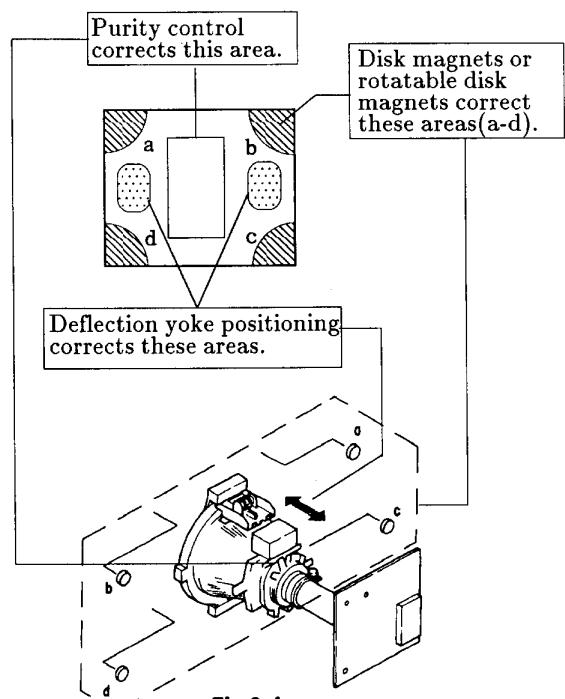


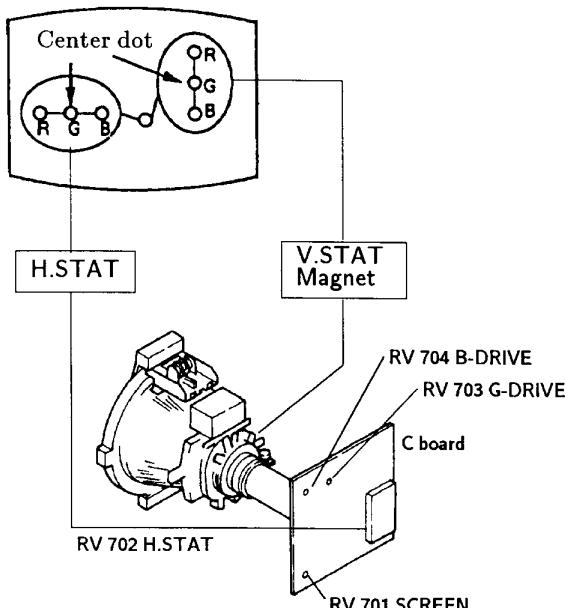
Fig.3-4

3-2. CONVERGENCE

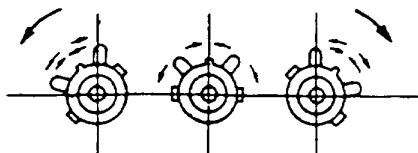
Preparation:

- Before starting, perform FOCUS, H.SIZE, and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

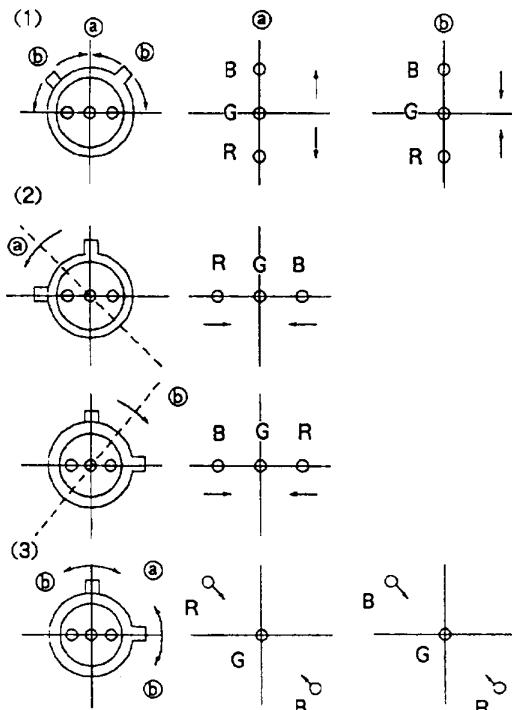
(1) Horizontal and Vertical Static Convergence



1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)
- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ④ and ⑤, red, green and blue dots move as shown below.

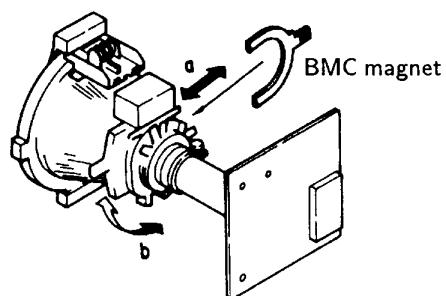


If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.



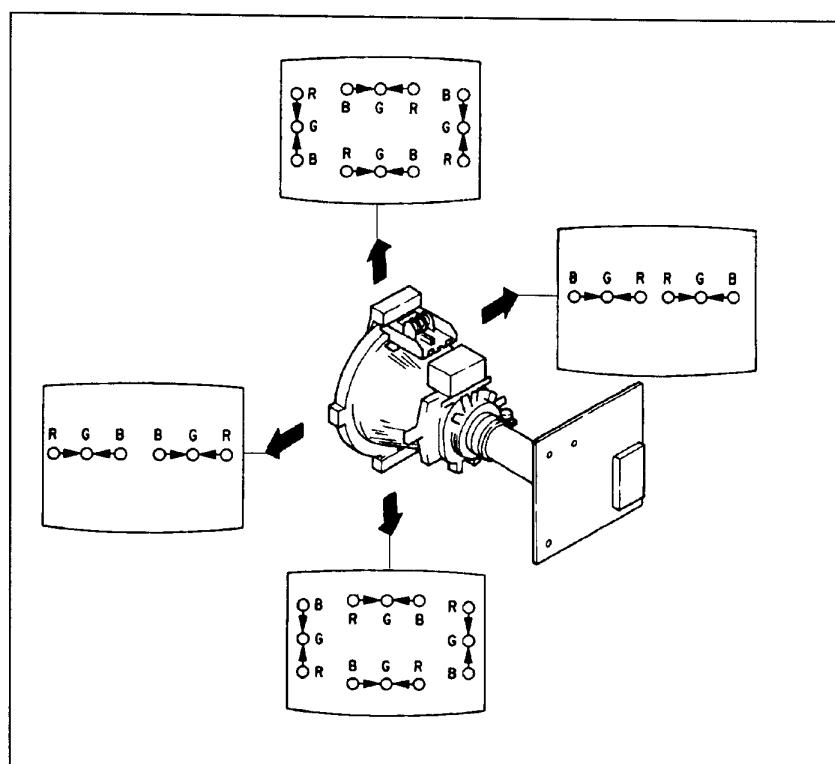
(2) Dynamic Convergence Adjustment

Preparation:

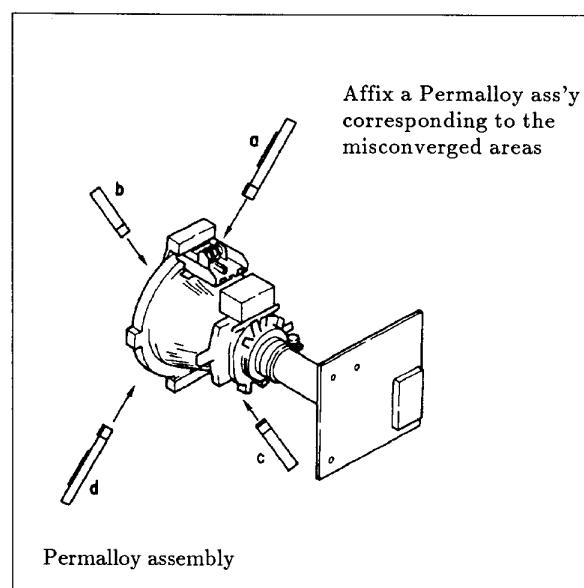
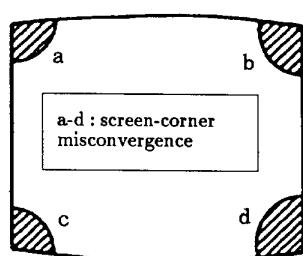
- Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.

3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

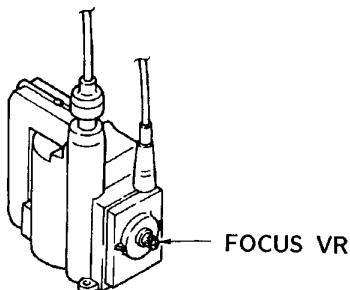


(3) Screen-corner Convergence



3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.

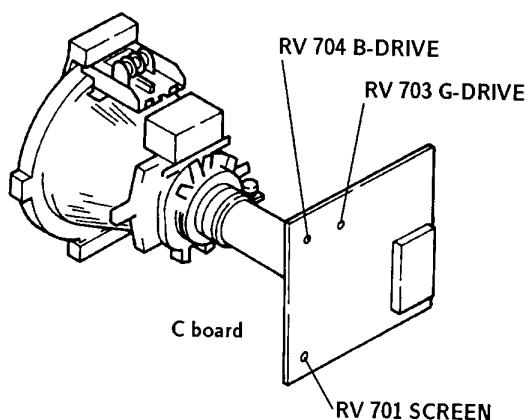


White Balance Adjustment

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

3-4. SCREEN (G 2) and WHITE BALANCE



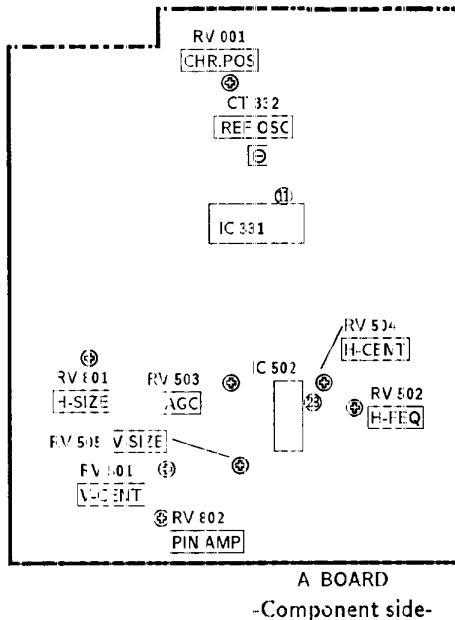
Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power source.
4. While watching the picture, adjust the G2 control RV701 (SCREEN) immediately before fly-back line disappears.

SECTION 4

CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS



TU AGC Adjustment (RV 503)

1. Tune in air signal.
2. Adjust AGC VR (RV 503) so that snow-noise and cross-modulation just disappear from the picture.

RV 504 H.CENT (HORIZONTAL CENTER)



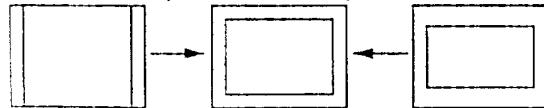
RV 801 H.SIZE (HORIZONTAL SIZE)



RV 501 V.CENT (VERTICAL CENTER)



RV 505 V.SIZE (VERTICAL SIZE)

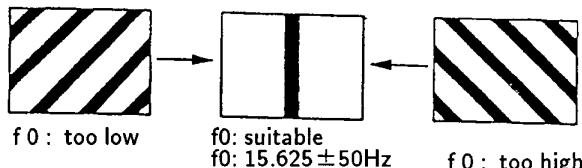


RV 802 PIN AMP (PIN CUSHION AMPLIFIER)



H.FREQ Adjustment (RV 502)

1. Input a PAL COLOR BAR signal, then connect an electrolytic capacitor (100 μ /16 V) between pin 28 and GND of IC 502.
2. Adjust RV 502 (H.FREQ) to stop scrolling of the picture in the horizontal direction.
3. After adjustment, remove the electrolytic capacitor.

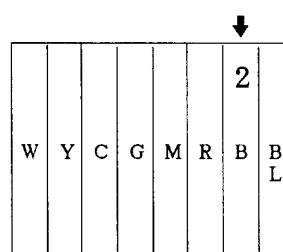


REF OSC 8.8 MHz Adjustment (CT 332)

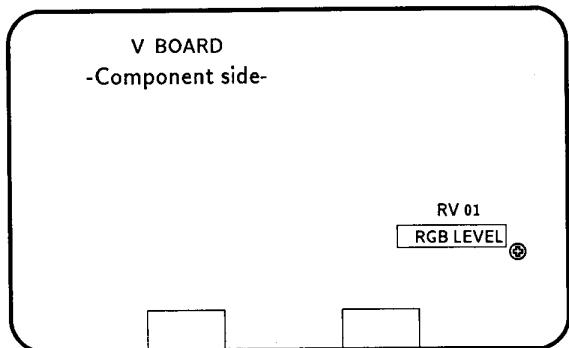
1. Input a PAL COLOR BAR pattern.
2. Short circuit between pin 11 of IC 331 and ground.
3. Adjust CT 332 to obtain color synchronization.
4. Remove the jumper wire from IC 331.

CHARACTER POSITION Adjustment (RV 001)

1. Input PAL COLOR BAR pattern.
2. Adjust RV 001 to position the character display at the point indicated by the arrow below.

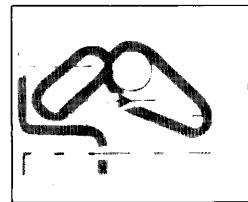


4-2. V BOARD ADJUSTMENT
(KV-M2151U/M2151L only)

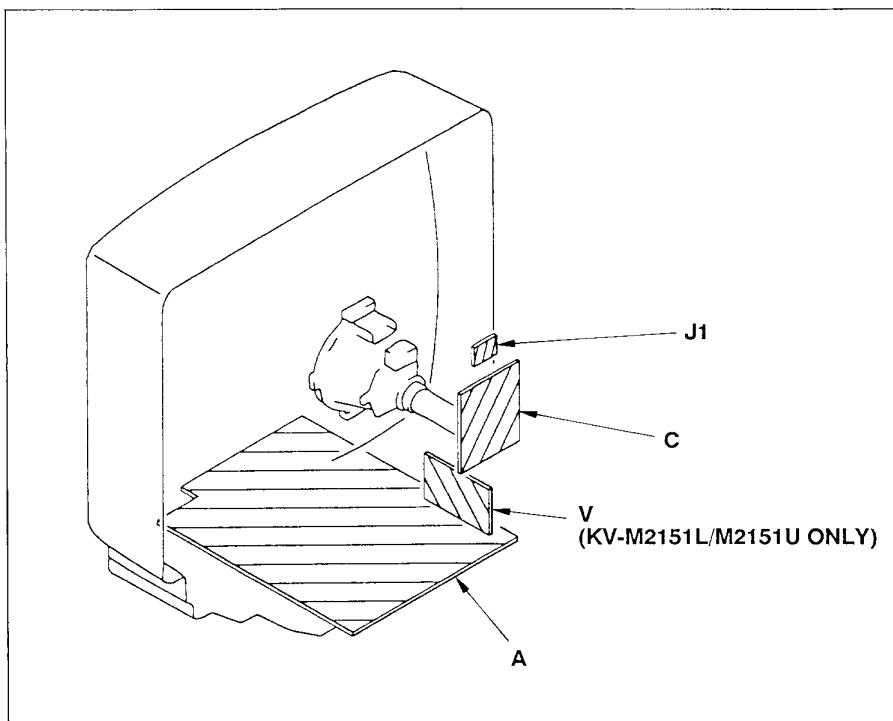


[RGB LEVEL Adjustment (RV 01)]

1. Set PICTURE to maximum.
2. Adjust RV01 till the RGB output becomes maximum.

SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION



5-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytic and tantalums.
 - All resistors are in ohms.
 $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{K}\Omega$
 - Indication of resistance, which does not have one for rating electrical power, is as follows.
- Pitch: 5 mm
Rating electrical power $1/4 \text{ W}$
- : nonflammable resistor.
 - : internal component.
 - : panel designation, or adjustment for repair.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - : earth-ground.
 - : earth-chassis.
 - : no mounted.

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

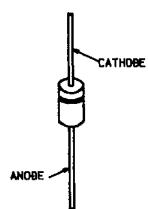
Reference information

RESISTOR	:	RN	METAL FILM	Q00
	:	RC	SOLID	Q01
	:	FPRD	NONFLAMMABLE CARBON	Q01
	:	FUSE	NONFLAMMABLE FUSIBLE	Q01
	:	RS	NONFLAMMABLE METAL OXIDE	Q01
	:	RB	NONFLAMMABLE CEMENT	Q02
	:	RW	NONFLAMMABLE WIREWOUND	Q10
	:	※	ADJUSTMENT RESISTOR	Q10
COIL	:	LF-8L	MICRO INDUCTOR	Q10
CAPACITOR	:	TA	TANTALUM	Q10
	:	PS	STYROL	Q10
	:	PP	POLYPROPYLENE	Q10
	:	PT	MYLAR	Q10
	:	MPS	METALIZED POLYESTER	Q11
	:	MPP	METALIZED POLYPROPYLENE	Q11
	:	ALB	BIPOLAR	Q11
	:	ALT	HIGH TEMPERATURE	Q14
	:	ALR	HIGH RIPPLE	Q14
•			Reading obtained with vector bar signal input	Q30
•			Readings obtained with a 10MΩ digital multimeter	Q30
•			Voltage measured with respect to ground unless otherwise indicated	Q30
•			Voltage variations may be noted due to normal component tolerances	Q30
•			All voltages are in V.	Q31
•			Circled numbers are weights in grams.	Q31
•			: Ground.	Q40
•			: Signal path (RF).	Q45
				Q50
				Q50
				Q60
				Q80

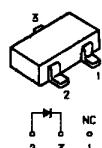
2SD2096-EF



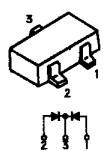
ERC06-15S



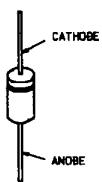
MA3051
MA3056M
MA3068M
R05.1M-B2
R05.6M-B2
R06.8M-B2



DA202K
MA152WK



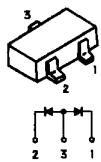
ERD28-06S
ERD28-035
RGP02-17
RGP10G
RU-3AM
R2K



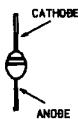
SPR-54MVW



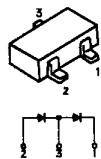
DAP202K



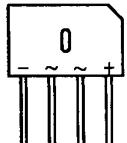
GP08D
U05G



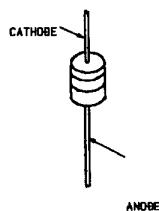
DA204K
155226

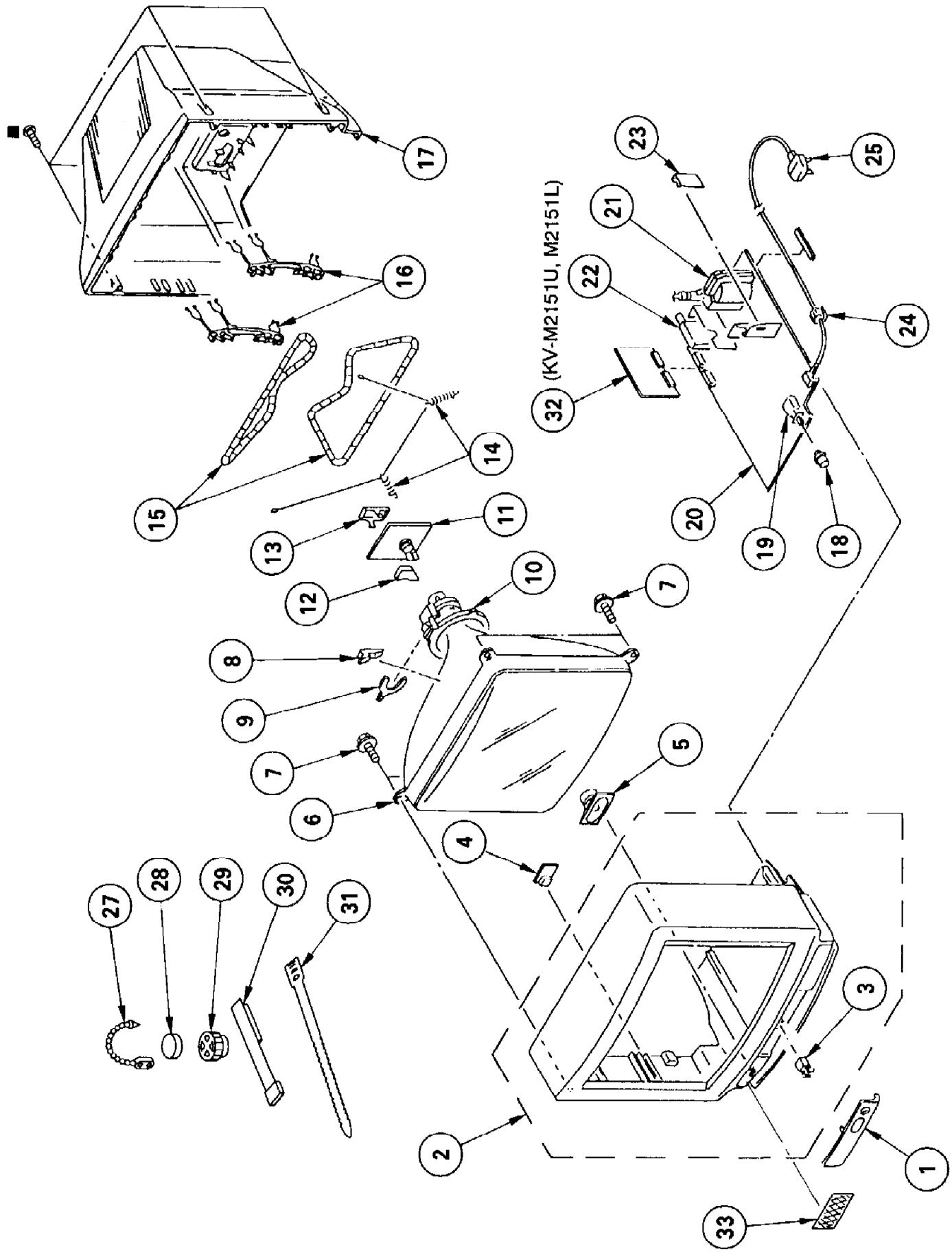


KBU4JL-608B
RBV-406H-01

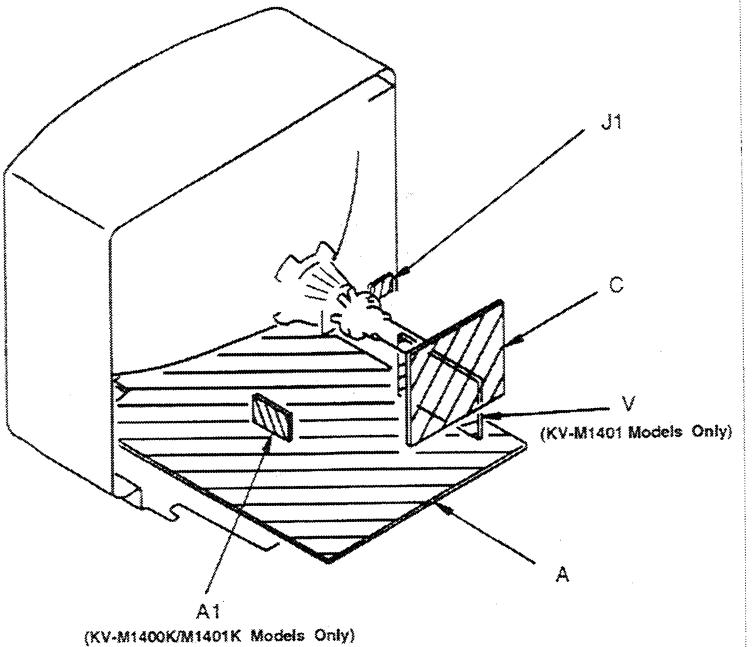


ERA83-006
R05.1ES-B2
R05.6ES-B2
R06.8ES-B2
R07.5ES-B2
R08.2ES-B2
1SS119
1SS133





5-1. CIRCUIT BOARD LOCATION



Note :

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$ 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms. $k\Omega = 1000\Omega$, $M\Omega = 1000K\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm
Rating electrical power $1/4 \text{ W}$

- nonflammable resistor.
- internal component.
- panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- earth - ground.
- earth - chassis.
- no mounted.

Note : The components identified by shading and marked are critical for safety. Replace only with part number specified.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: \times	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Readings are taken with a colour-bar signal input.
Readings are taken with $10M\Omega$ digital multimeter.
Voltages are dc with respect to ground unless otherwise noted.
Voltage variations may be noted due to normal production tolerances.
All voltages are in V.
Circled numbers are waveform references.
 B+ bus.
 signal path (RF)

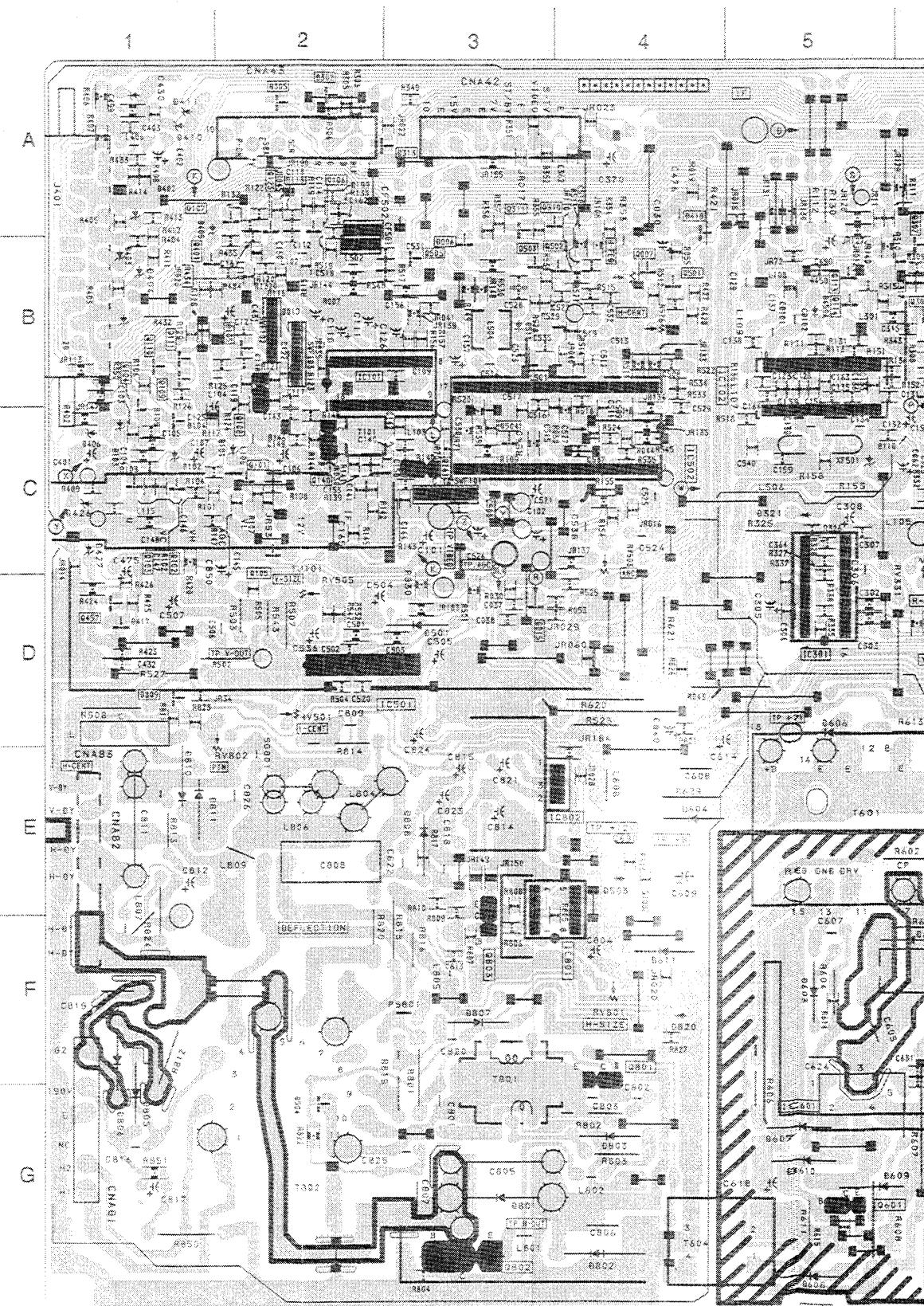
5-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS.

— A Board —

A Board

DIODE	DIODE	TRANSISTOR
D002 E-10	D604 E-4	Q001 D-8
D004 C-9	D605 E-6	Q003 C-9
D007 B-8	D606 D-5	Q004 D-10
D008 D-10	D607 G-5	Q005 B-8
D009 B-8	D608 H-5	Q006 C-8
D011 E-8	D609 G-5	Q007 B-4
D020 B-8	D610 G-5	Q015 D-3
D110 C-5	D611 F-4	Q016 D-10
D301 C-6	D801 G-3	Q017 E-9
D302 A-2	D802 H-4	Q019 D-10
D303 B-6	D803 G-4	Q020 D-8
D305 A-2	D805 G-1	Q104 C-1
D306 B-6	D806 F-1	Q106 A-2
D313 A-3	D807 F-3	Q107 A-2
D321 C-5	D808 E-3	Q112 A-7
D324 A-7	D810 E-1	Q114 B-5
D334 B-6	D811 E-1	Q115 A-6
D402 A-1	D820 F-4	Q123 A-2
D403 B-1		Q141 C-3
D404 B-1		Q302 C-7
D405 A-1	IC001 C-9	Q304 B-6
D406 C-1	IC002 D-9	Q305 B-6
D411 A-1	IC003 D-10	Q307 B-6
D417 D-1	IC004 E-9	Q310 A-3
D418 A-4	IC005 B-8	Q311 A-3
D426 C-1	IC102 B-5	Q401 B-1
D427 C-1	IC201 F-8	Q457 D-1
D450 B-5	IC301 D-5	Q504 C-3
D501 D-3	IC302 B-7	Q505 B-3
D503 E-4	IC331 C-7	Q601 G-5
D504 G-2	IC501 D-2	Q801 F-4
D519 C-8	IC502 C-4	Q802 H-3
D601 F-7	IC601 G-5	Q803 F-3
D602 F-6	IC801 F-3	
D603 F-5	IC802 E-4	VARIABLE RESISTOR
		TRIMMER
	CT331 C8	RV001 D-9
	CT332 C8	RV501 D-2
		RV502 B-4
		RV503 C-4
		RV505 D-2
		RV801 F-4

A SYSTEM CONTROL
HV OUT, MEMORY, CHROMA



NOTE:

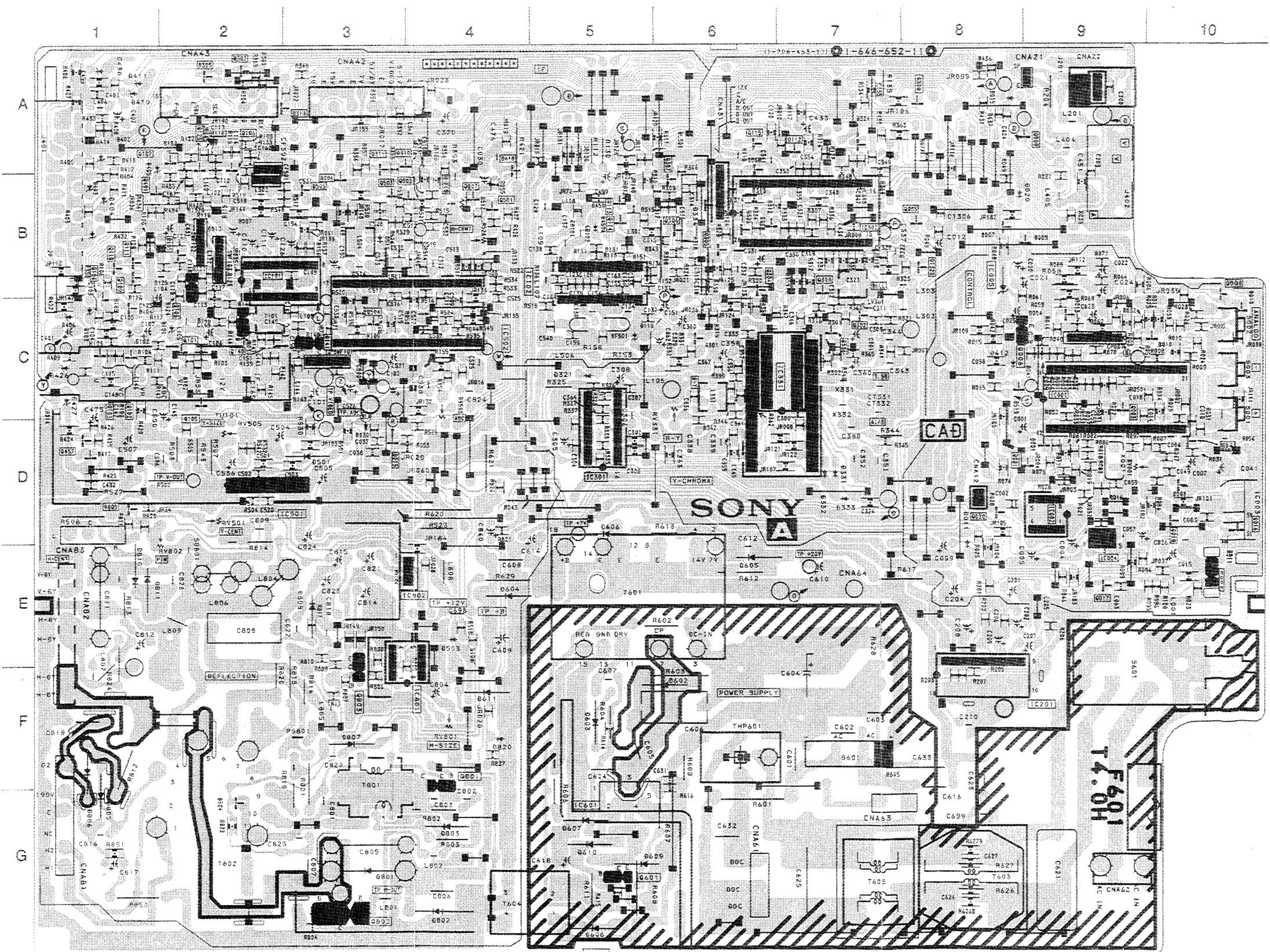
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

5-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS.

— A Board —

A Board

DIODE	DIODE	TRANSISTOR
D002 E-10	D604 E-4	Q001 D-8
D004 C-9	D605 E-6	Q003 C-9
D007 B-8	D606 D-5	Q004 D-10
D008 D-10	D607 G-5	Q005 B-8
D009 B-8	D608 H-5	Q006 C-8
D011 E-8	D609 G-5	Q007 B-4
D020 B-8	D610 G-5	Q015 D-3
D110 C-5	D611 F-4	Q016 D-10
D301 C-6	D801 G-3	Q017 E-9
D302 A-2	D802 H-4	Q019 D-10
D303 B-6	D803 G-4	Q020 D-8
D305 A-2	D805 G-1	Q104 C-1
D306 B-6	D806 F-1	Q106 A-2
D313 A-3	D807 F-3	Q107 A-2
D321 C-5	D808 E-3	Q112 A-7
D324 A-7	D810 E-1	Q114 B-5
D334 B-6	D811 E-1	Q115 A-6
D402 A-1	D820 F-4	Q123 A-2
D403 B-1		Q141 C-3
D404 B-1		Q302 C-7
D405 A-1	IC001 C-9	
D406 C-1	IC002 D-9	
D411 A-1	IC003 D-10	
D417 D-1	IC004 E-9	
D418 A-4	IC005 B-8	
D426 C-1	IC102 B-5	
D427 C-1	IC201 F-8	
D450 B-5	IC301 D-5	
D501 D-3	IC302 B-7	
D503 E-4	IC331 C-7	
D504 G-2	IC501 D-2	
D519 C-8	IC502 C-4	
D601 F-7	IC601 G-5	
D602 F-6	IC801 F-3	
D603 F-5	IC802 E-4	
		VARIABLE RESISTOR
	CT331 C8	RV001 D-9
	CT332 C8	RV501 D-2
		RV502 B-4
		RV503 C-4
		RV505 D-2
		RV801 F-4
		TRIMMER

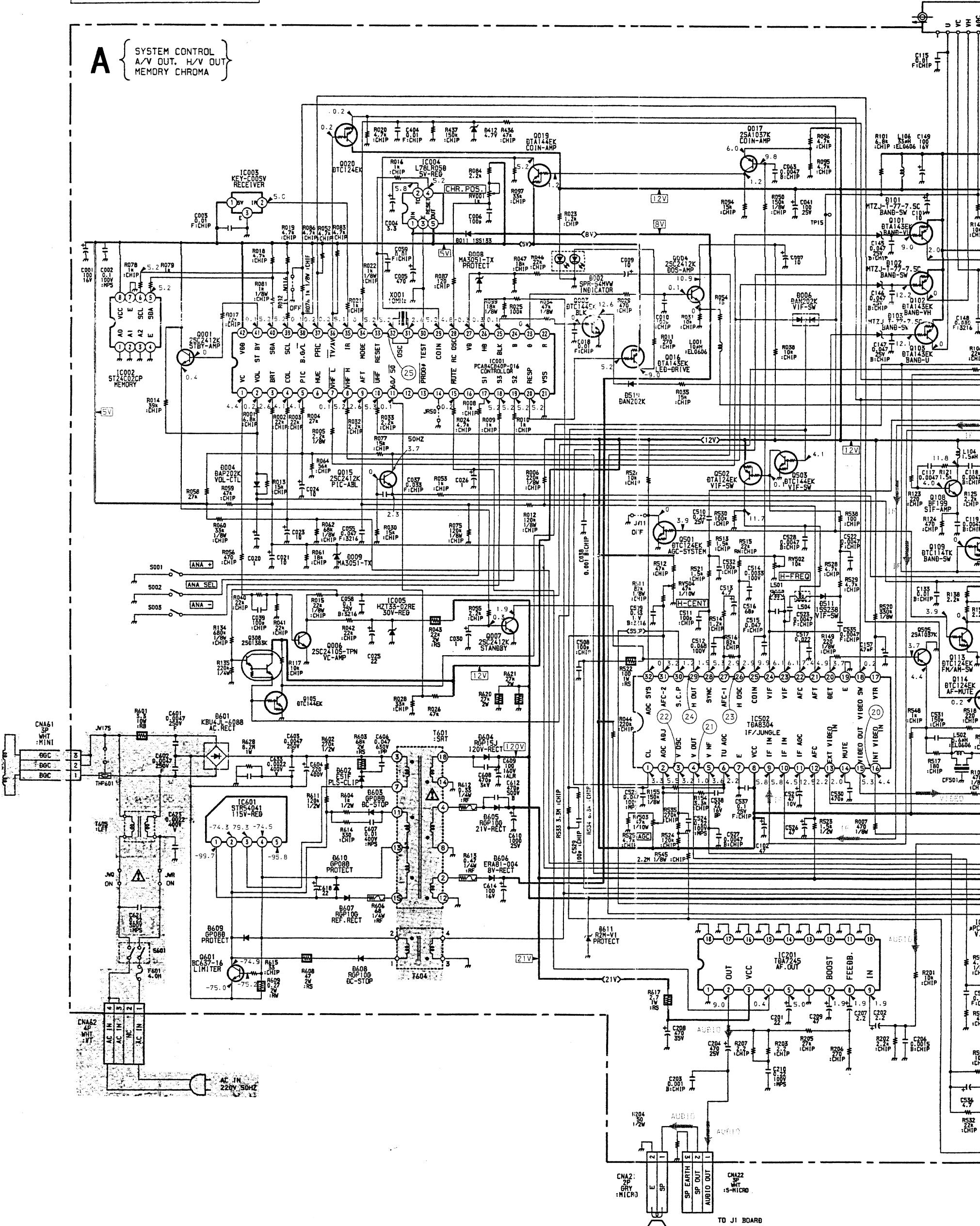


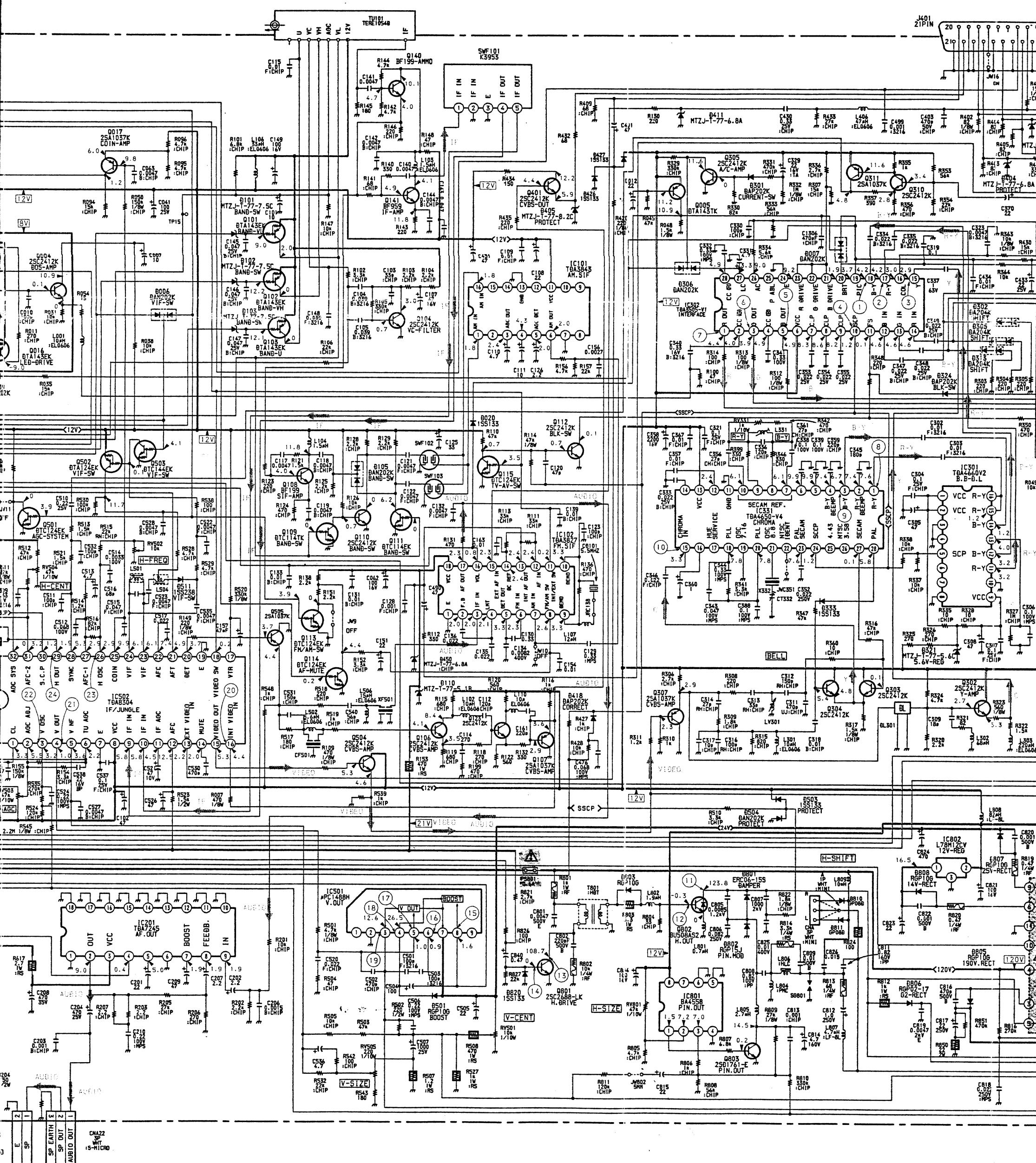
A

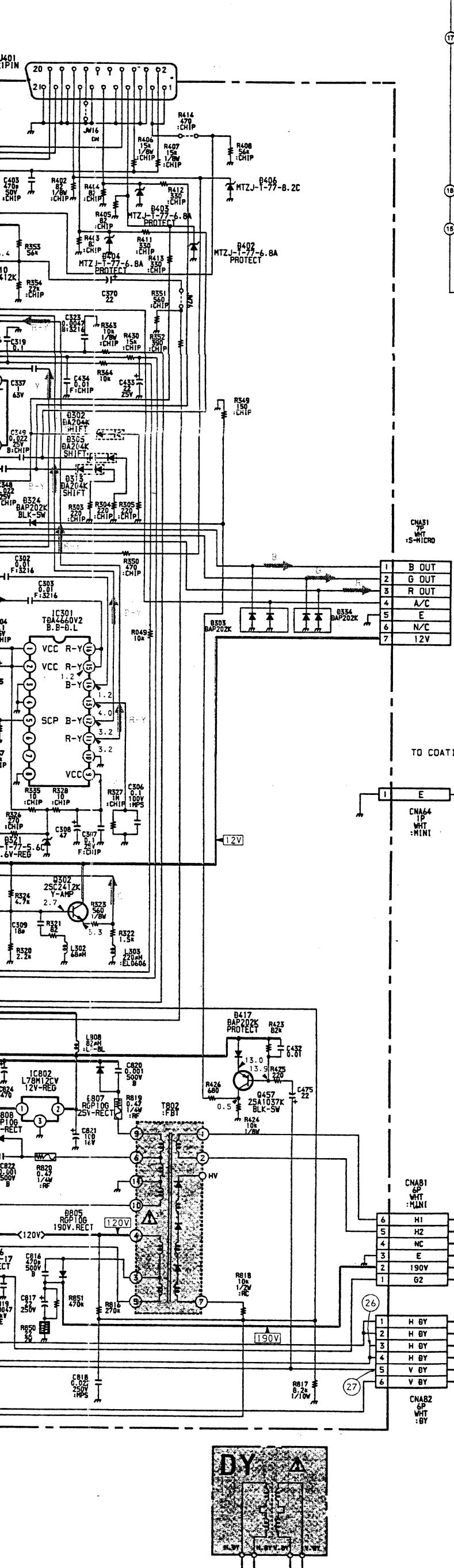
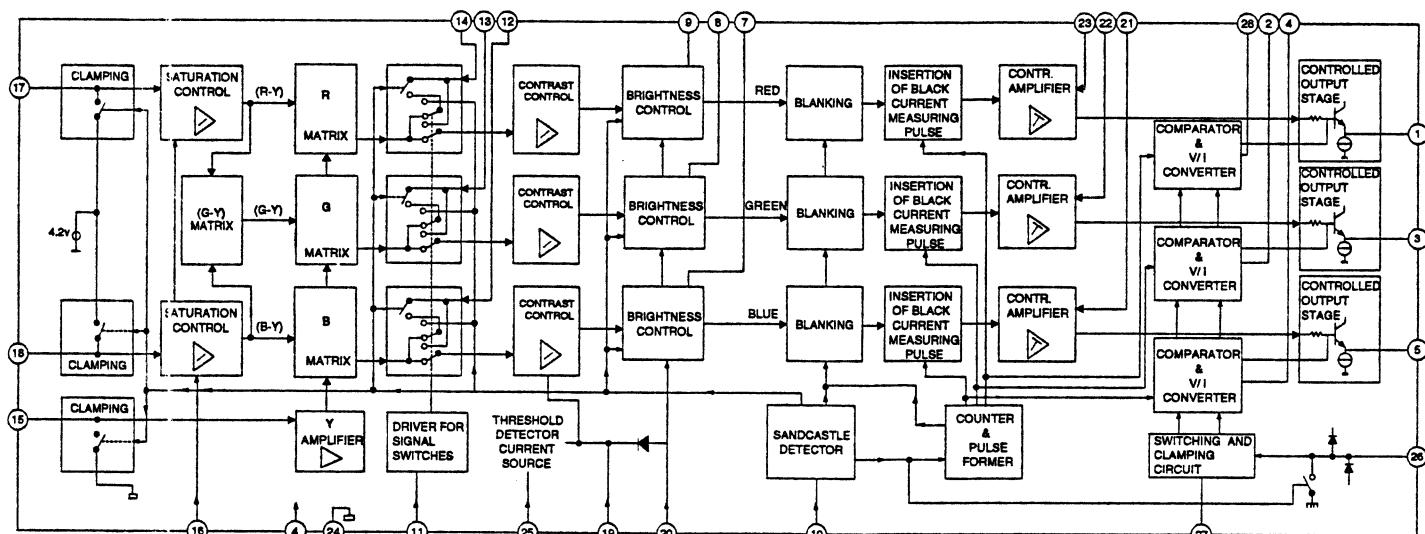
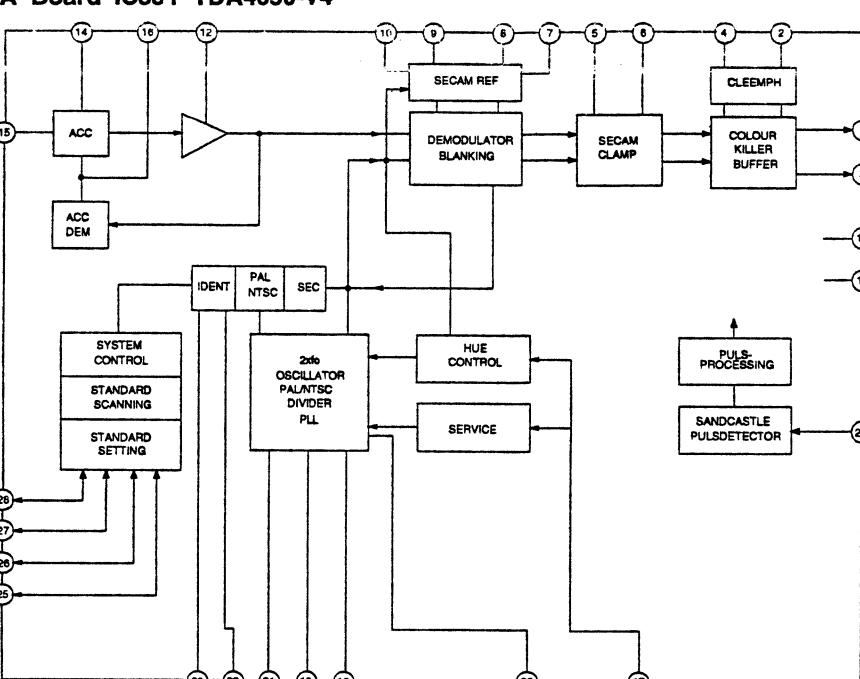
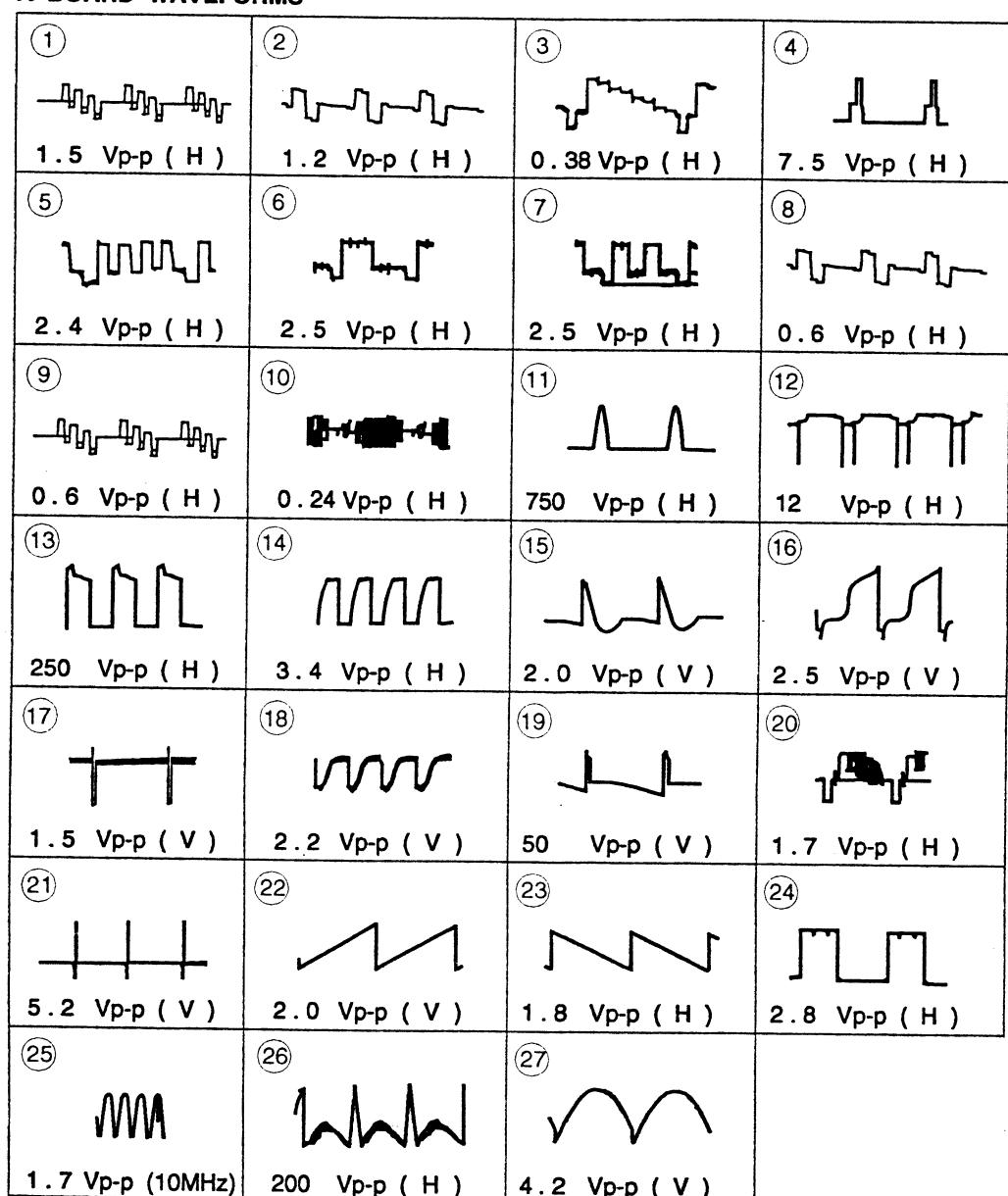
B

KV-M1400B SCHEMATIC

A { SYSTEM CONTROL
A/V OUT. H/V OUT
MEMORY CHROMA }





**A Board IC302 TDA3505-V1****A Board IC331 TDA4650-V4****A BOARD WAVEFORMS**

KV-M1400U / M1401U / M1400L / M1400A / M1400E SCHEMATIC

1 2 3 4 5 6 7 8 9 10 11

A

B

C

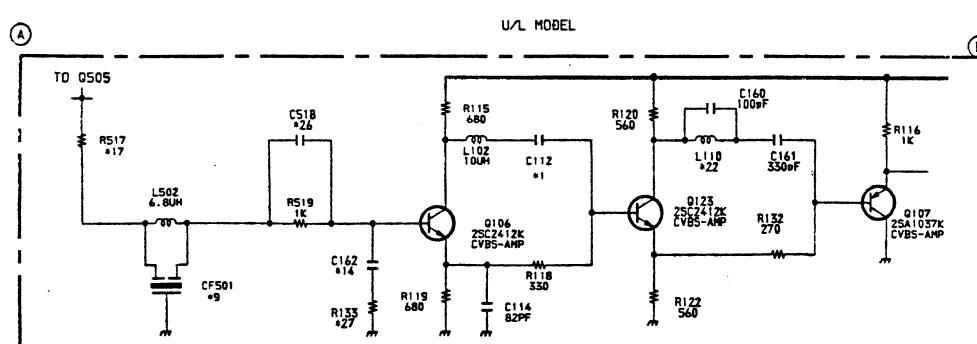
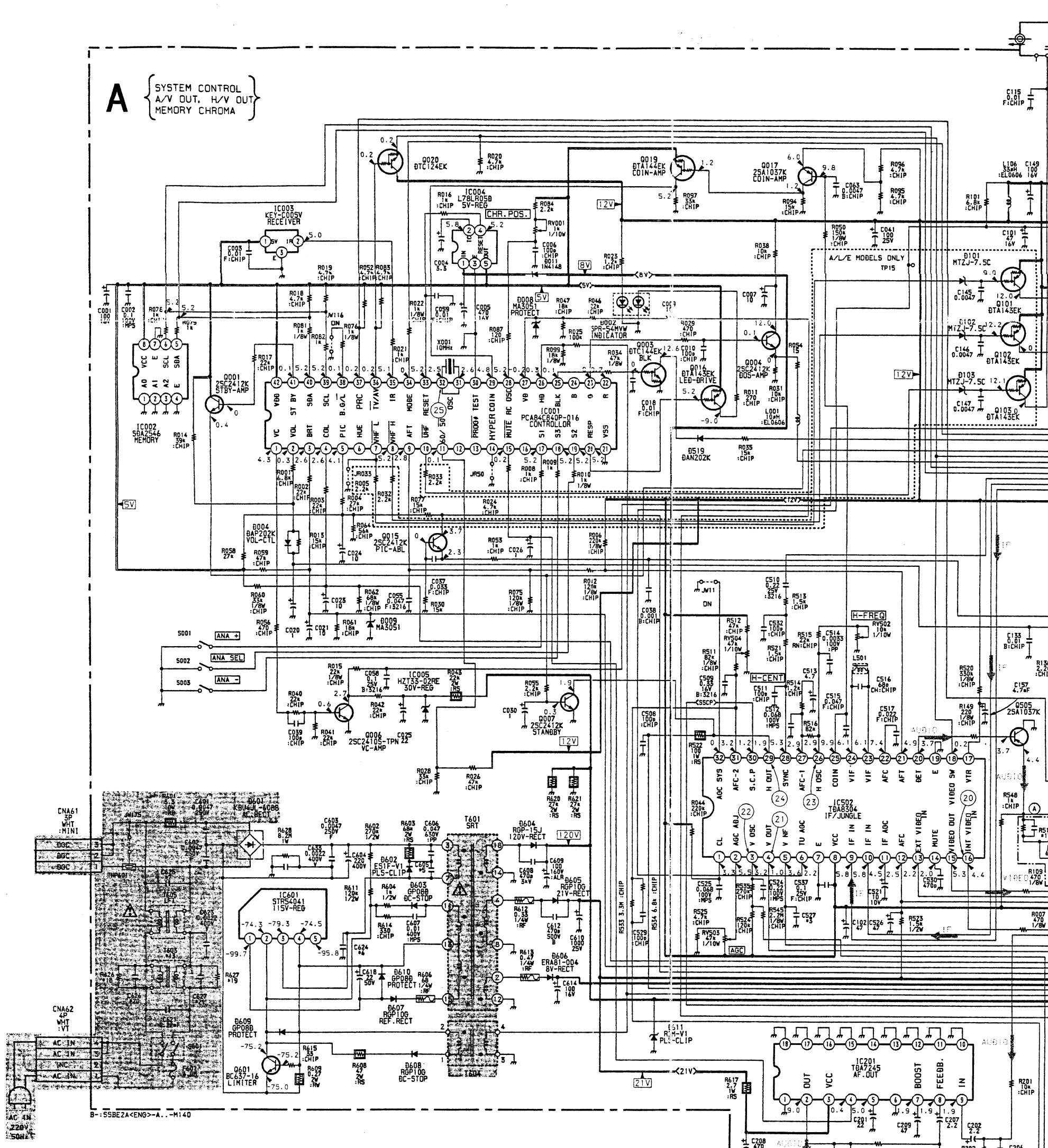
D

1

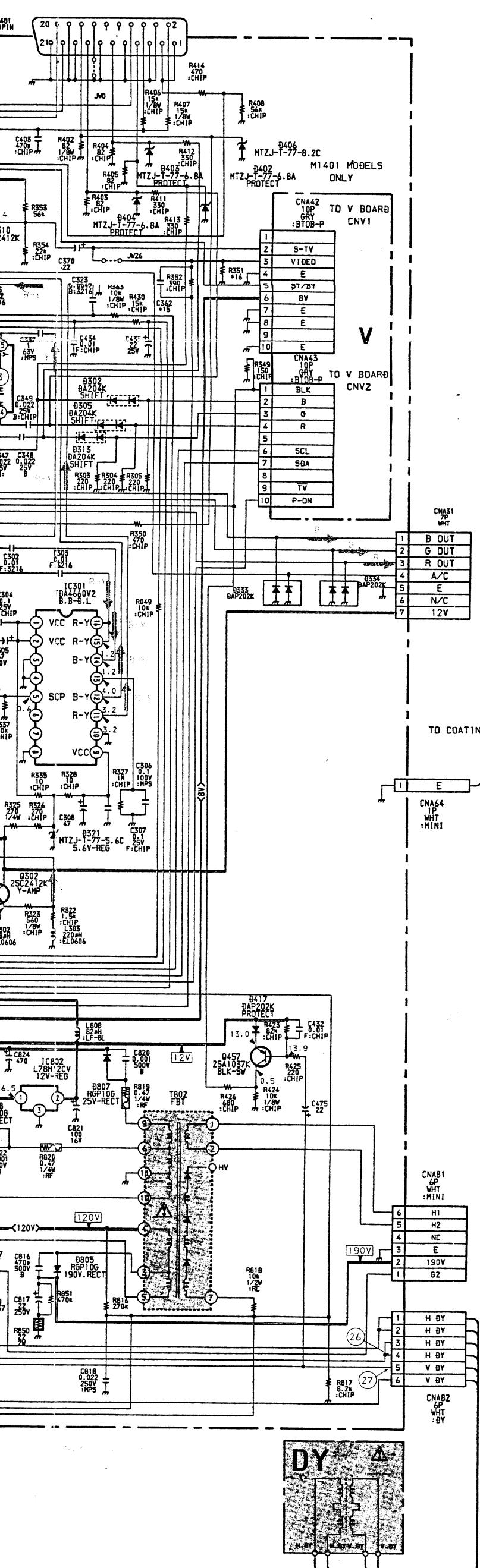
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6

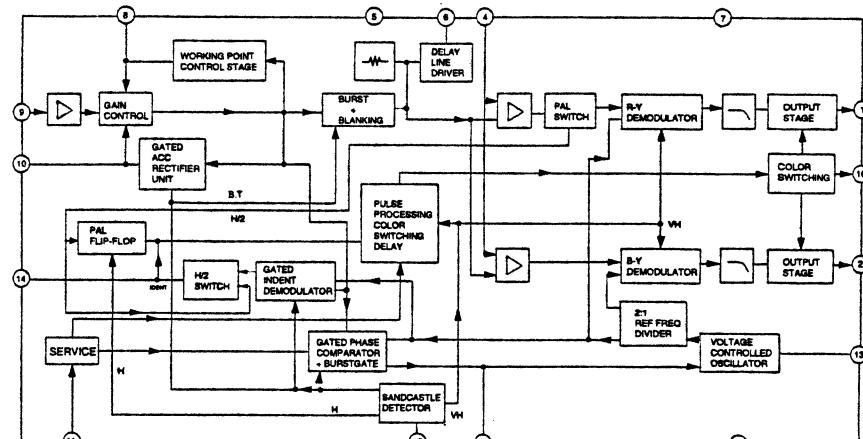
A { SYSTEM CONTROL
A/V OUT, H/V OUT
MEMORY CHROMA }



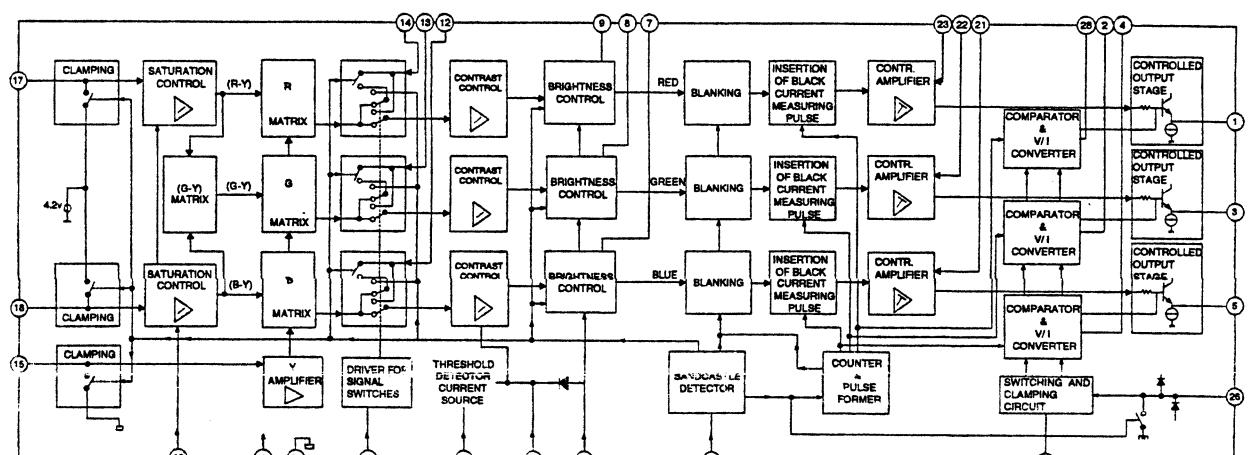




A Board IC331 TDA4510-V8



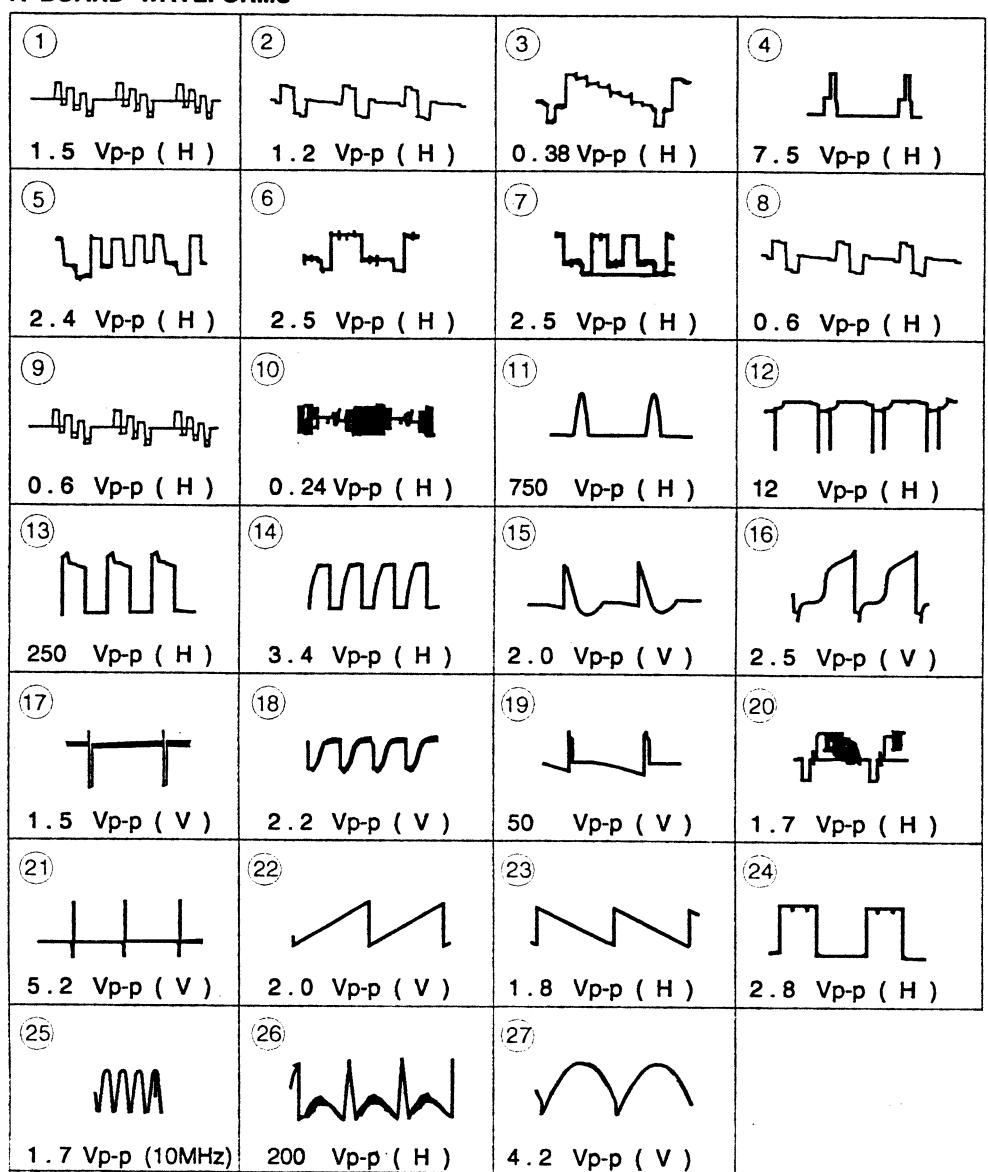
A Board IC302 TDA3505-V1



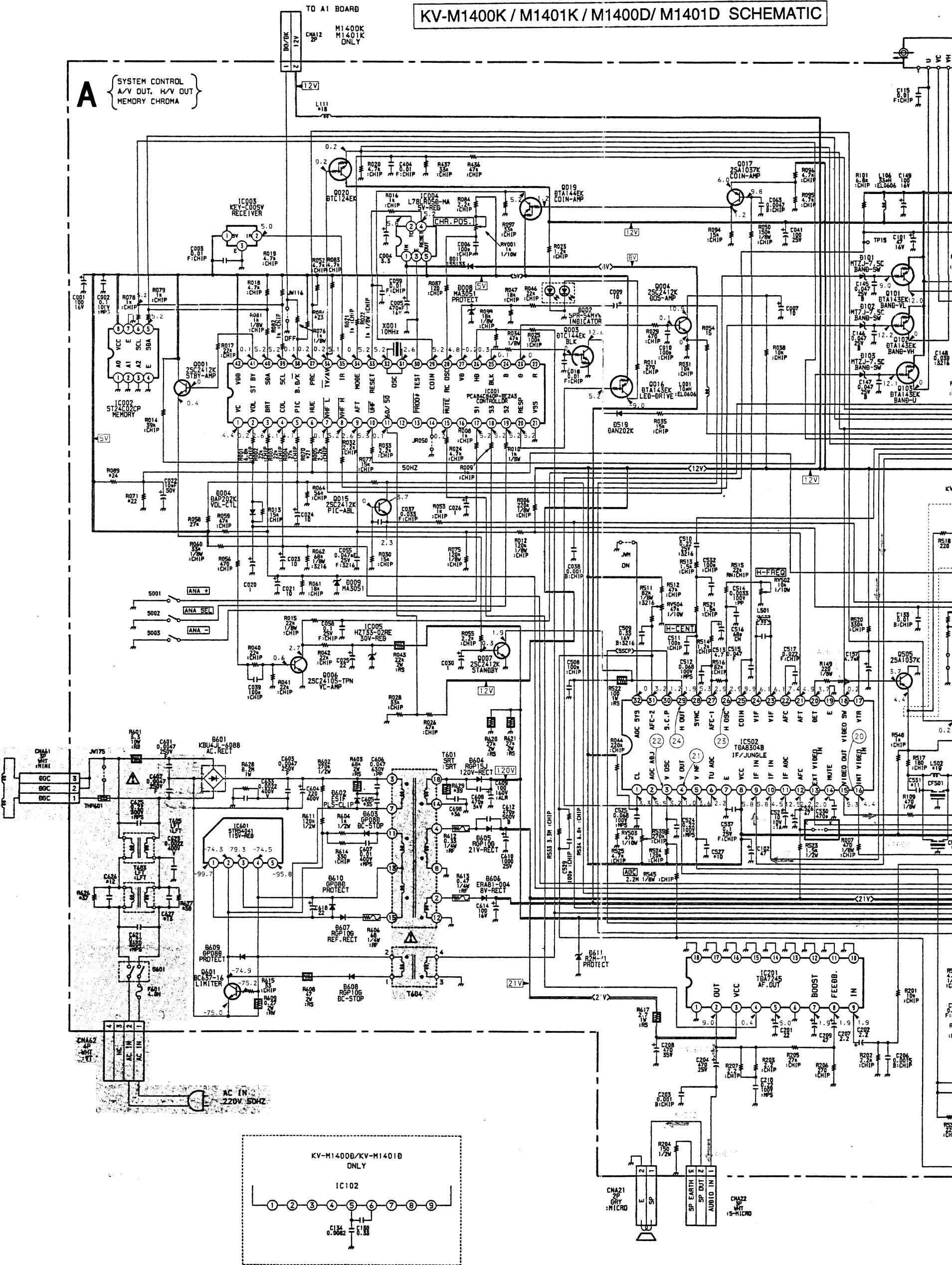
A Board
*** Mark List**

	M1400A	M1400E	M1400/M1401U	M1400L
*1 C112	100pF	100pF	82pF	47p
*2 C123	100pF	100pF	680pF	680p
*3 C527	0.01uF	0.0047uF	0.0047uF	0.0047uF
*4 C531	68pF	68pF	—	—
*5 C605	0.047uF	0.001uF	—	—
*6 C624	0.001uF	0.001uF	0.001uF	—
*7 C625	0.22uF	0.22uF	—	—
*8 CD101	5.5MHz	5.5MHz	6MHz	6MHz
*9 CF501	5.5MHz	5.5MHz	6MHz	6MHz
*10 D104	DAN202K	—	—	—
*11 L105	10uH	—	JUMPER	JUMPER
*12 L107	12uH	12uH	10uH	10uH
*13 T603	LFT	LFT	JUMPER	JUMPER
*14 C162	—	—	—	47pF
*15 C362	—	—	100pF	—
*16 R351	560	1.5K	560	560
*17 R517	270	180	270	180
*18 R626	47K	—	—	—
*19 R627	47K	—	—	—
*20 C626	—	15pF	—	—
*21 C627	—	15pF	—	—
*22 L110	—	—	—	10uH
*23 R110	—	47K	47K	47K
*24 TU101	BT-3C	BT-3C	BT-3C421	BT-3U601
*25 XF501	5.5MHz	5.5MHz	6MHz	6MHz
*26 C518	—	—	—	82pF
*27 R133	—	—	—	2.2K

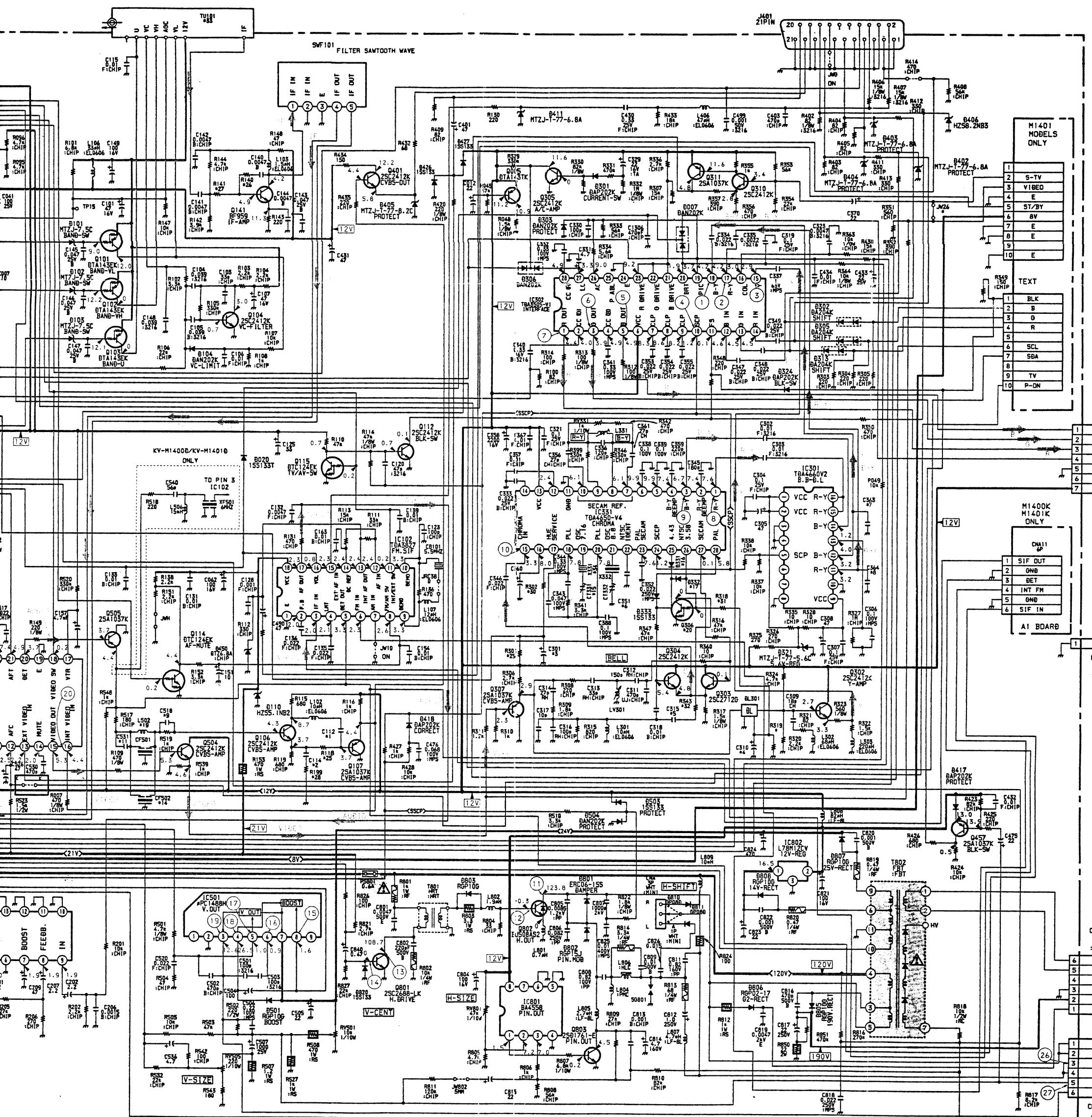
A BOARD WAVEFORMS

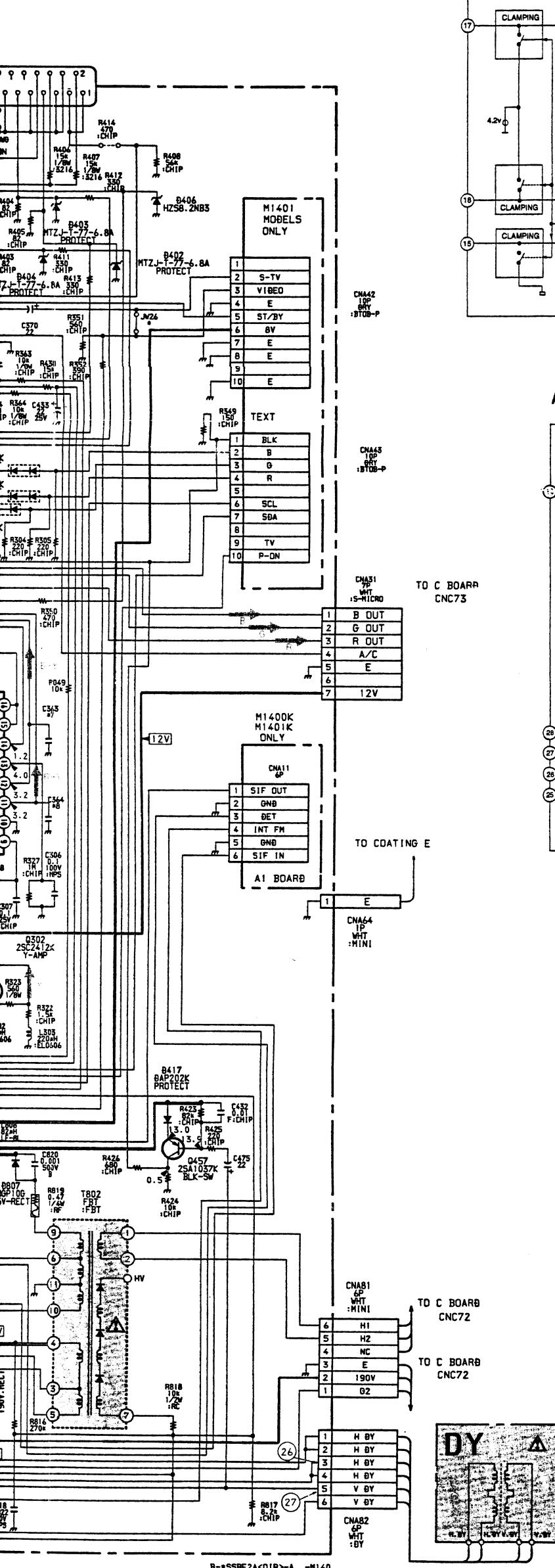


KV-M1400K / M1401K / M1400D / M1401D SCHEMATIC

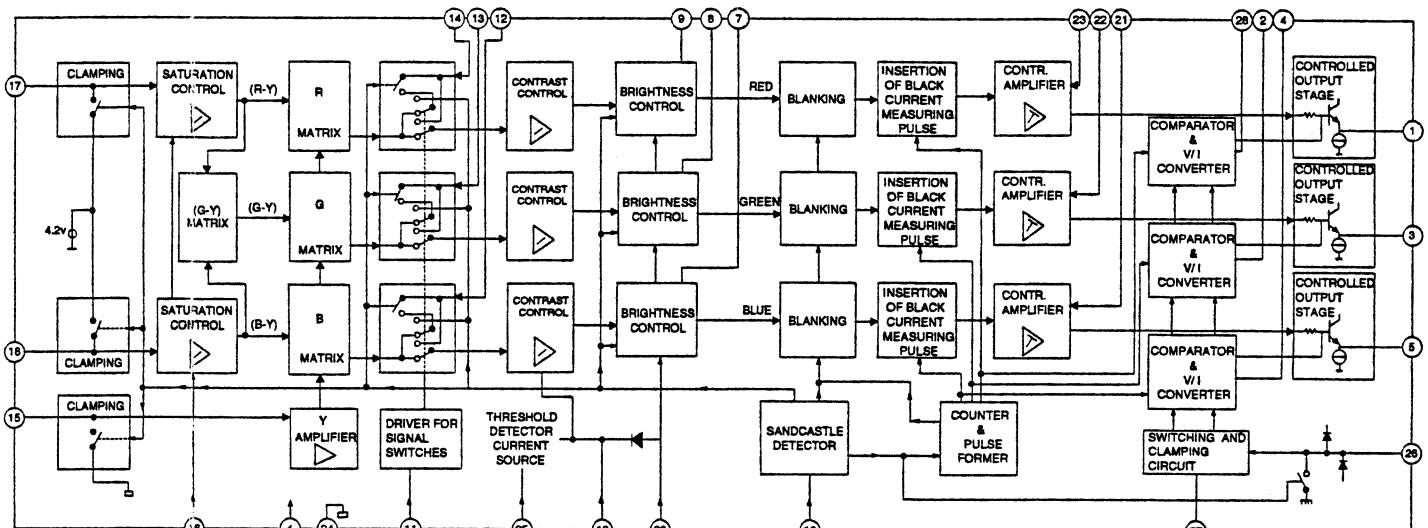


ATIC

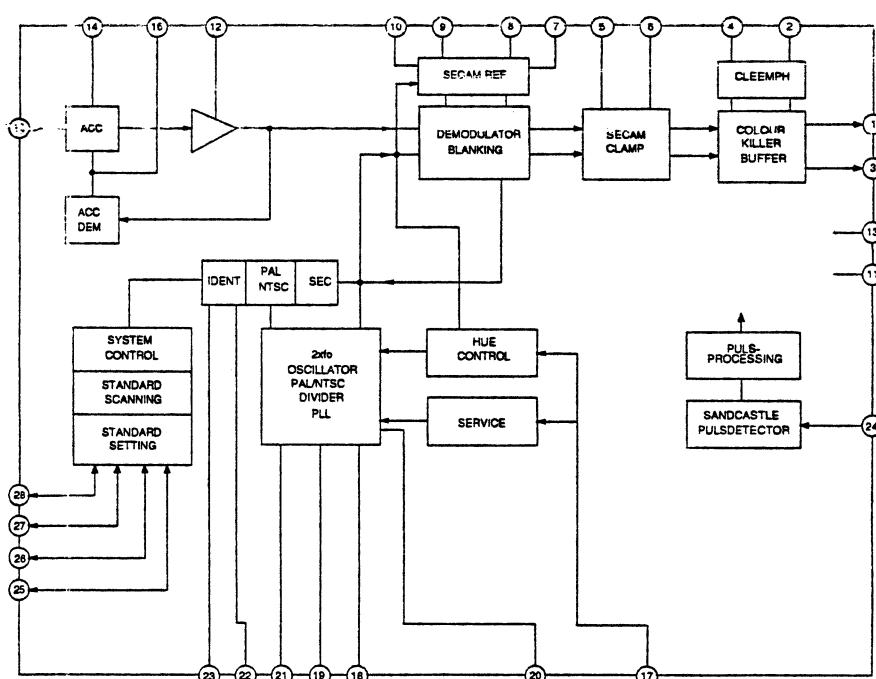




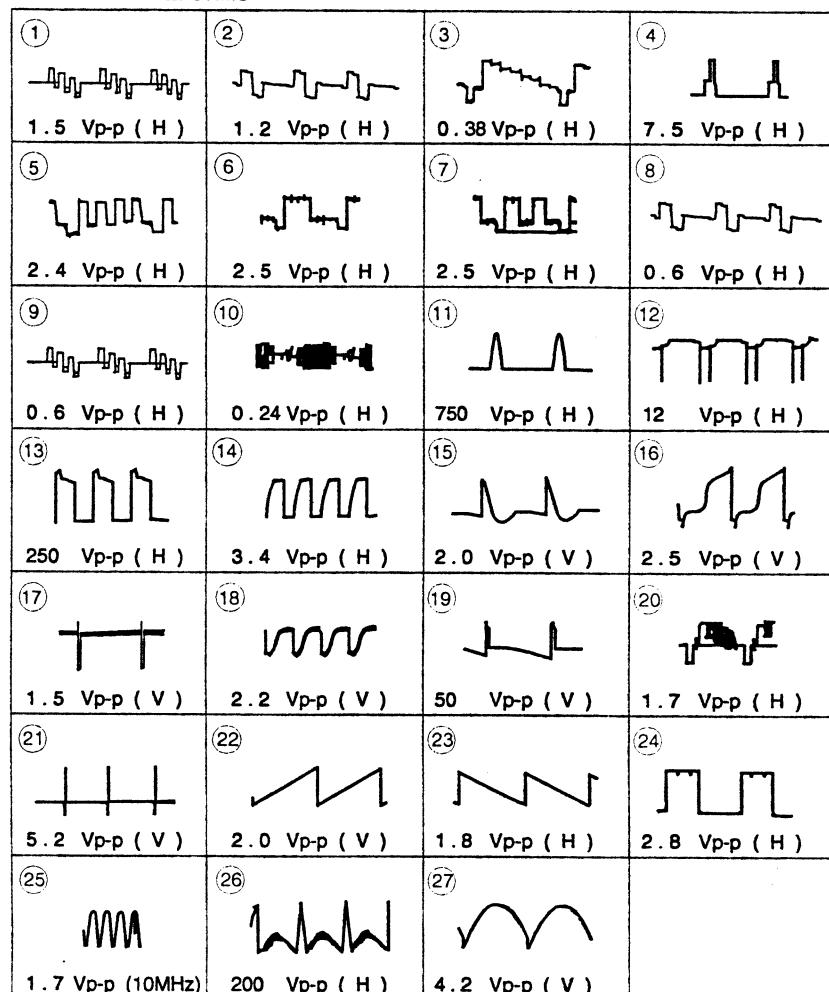
A Board IC302 TDA3505-V1



A Board IC-331 TDA4650-V4



A BOARD WAVEFORMS



**A Board
* Mark List**

		M1400/1401K	M1400/1401D
*1	C112	47pF	220pF
*2	C114	330pF	47pF
*3	C301	10MF	_____
*4	C310	33MF	JUMPER
*5	C315	68pF	_____
*6	C351	0.022MF	_____
*7	C363	680pF	_____
*8	C364	680pF	_____
*9	C518	100pF	_____
*10	C527	0.01MF	_____
*11	C531	_____	68pF
*12	C626	15pF	_____
*13	C627	15pF	_____
*14	CF502	TRAP 6.5Mhz	_____
*15	CT331	CAP ADJ	JUMPER
*16	D331	1SS119	_____
*17	D332	1SS119	_____
*18	L111	10uH	_____
*19	L502	4.7uH	6.2uH
*20	Q306	DTC124EK	_____
*21	R070	1.8K	_____
*22	R071	3.9K	_____
*23	R086	4.7K	_____
*24	R089	3.9K	_____
*25	R118	330	270
*26	R140	330	680
*27	R141	68	150
*28	R199	150	2.2K
*29	R301	15K	_____
*30	R302	220	_____
*31	R318	47K	_____
*32	R343	180	_____
*33	TU101	BT-3C 301	BT-3C 421
*34	X331	OSCILLATOR	JUMPER
*35	C605	_____	0.001MF
*36	C698	_____	330pF
*37	R626	_____	47K
*38	R627	_____	47K
*39	R629	_____	330

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

A

8

1

11

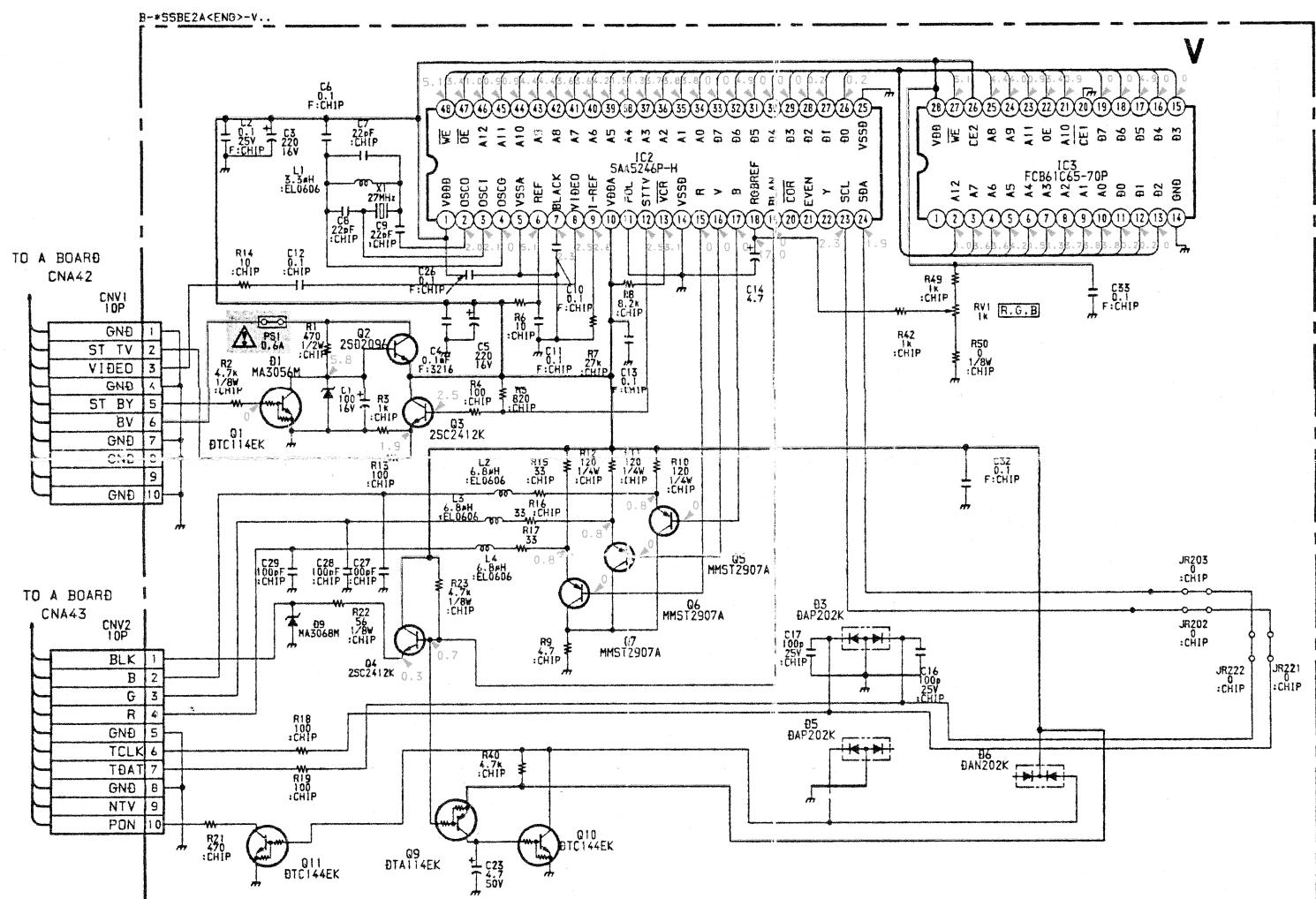
5

6

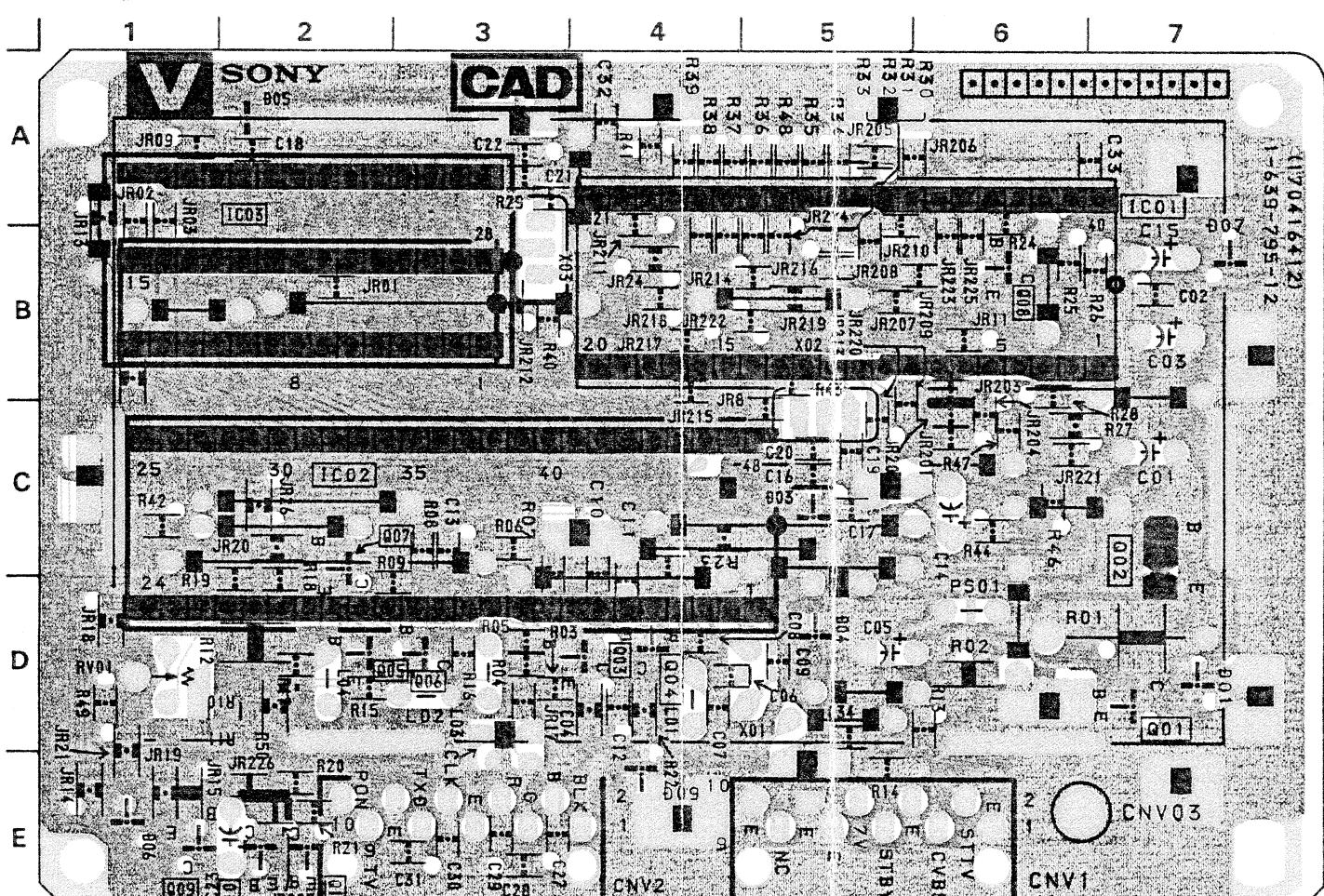
H

1

8



- V Board -



1 | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10**

A

B

2

5

5

6

1

1

1

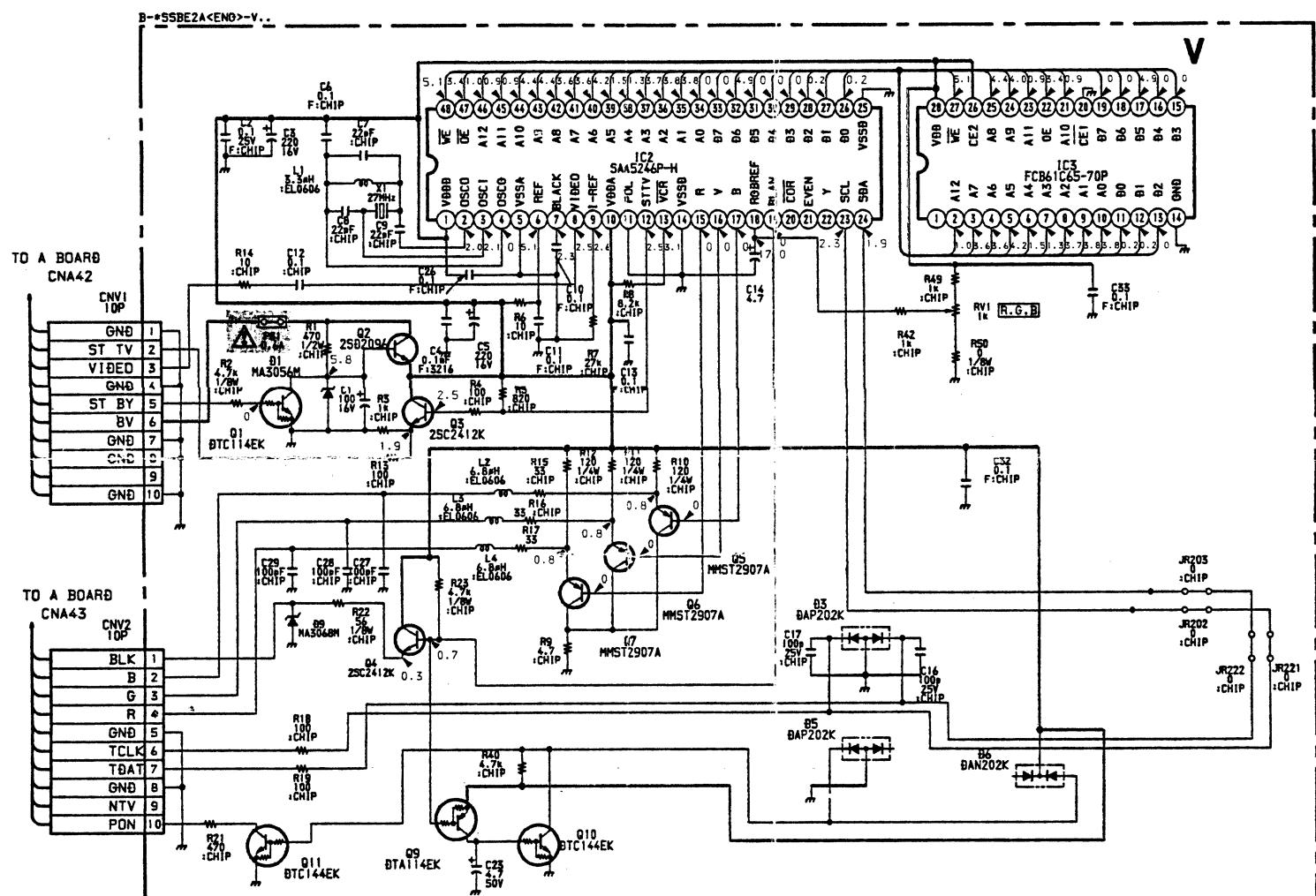
14

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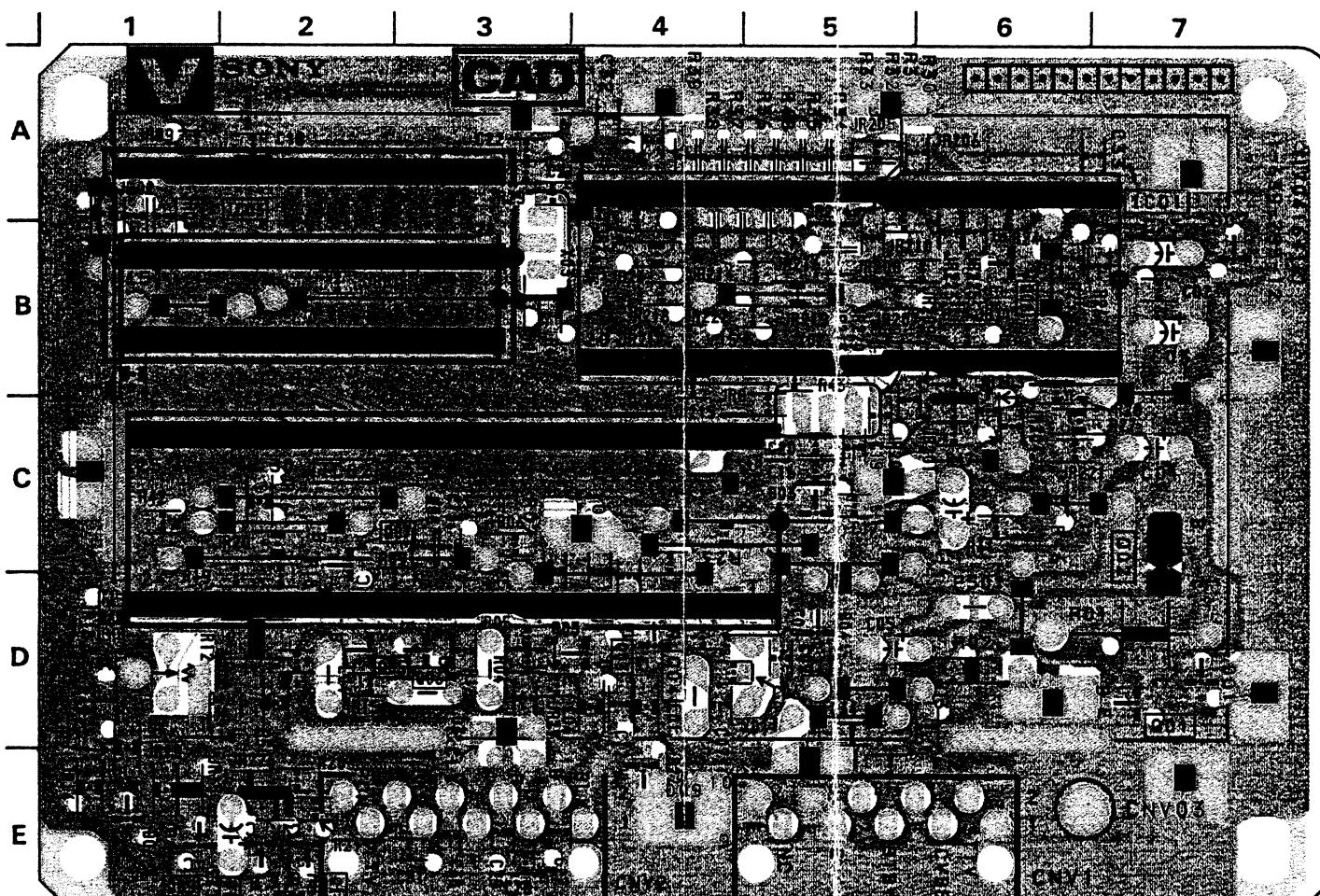
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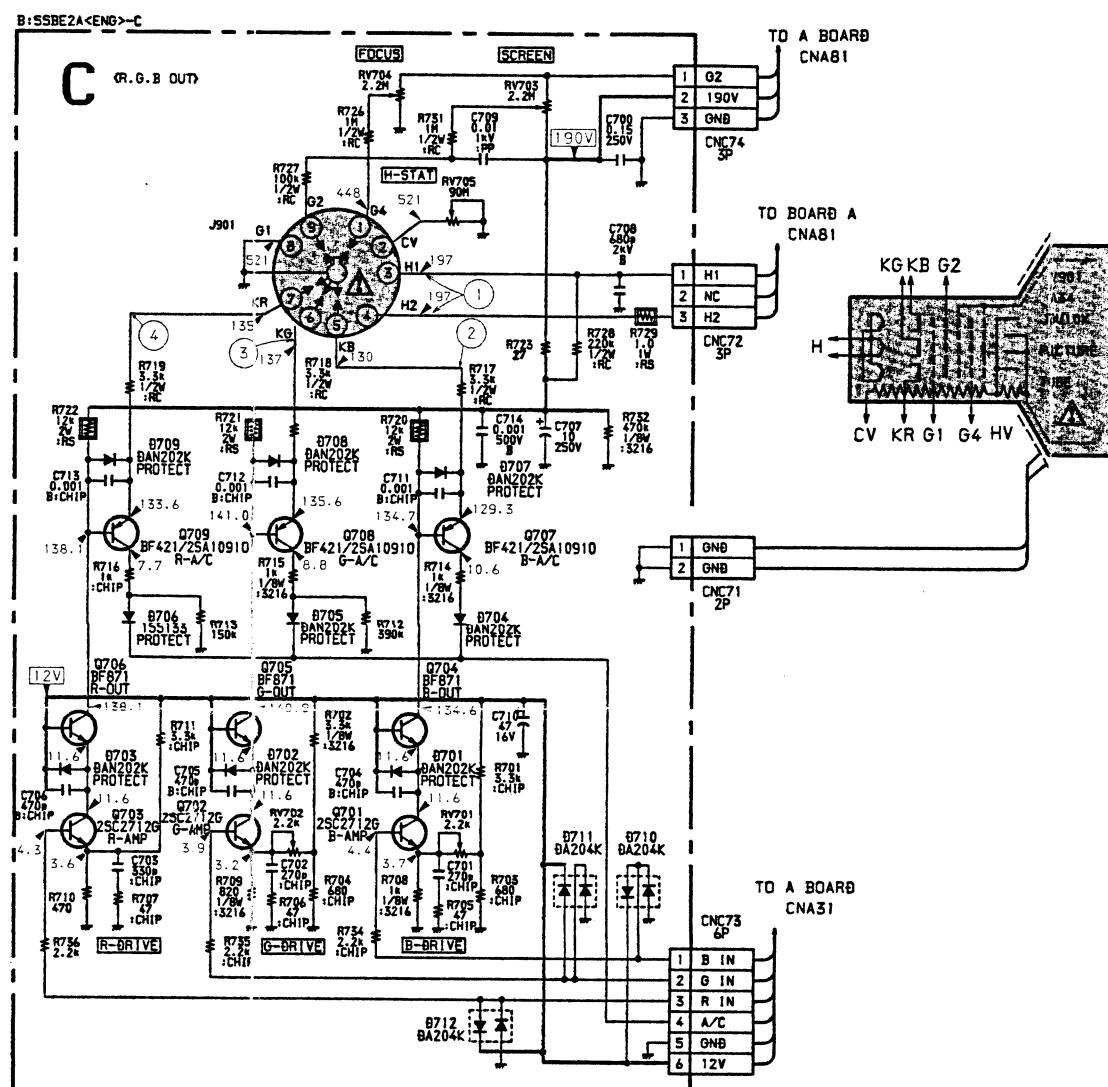
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1

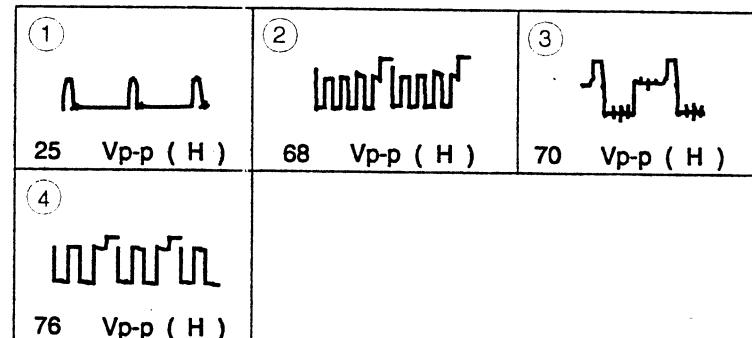


- V Board -

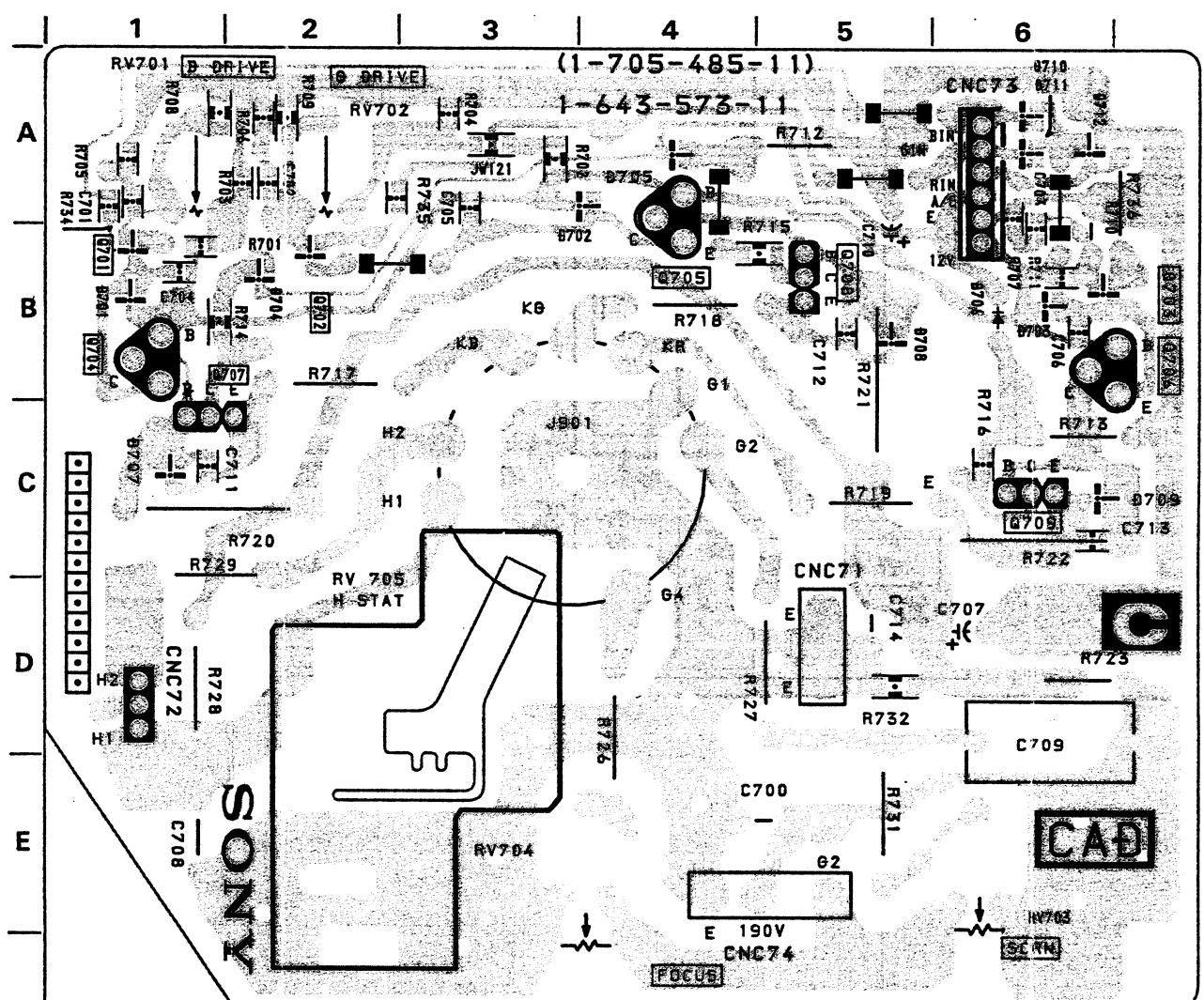




C BOARD WAVEFORMS



- C Board -



J1 JACK

A-1

18

19

20

21

22

23

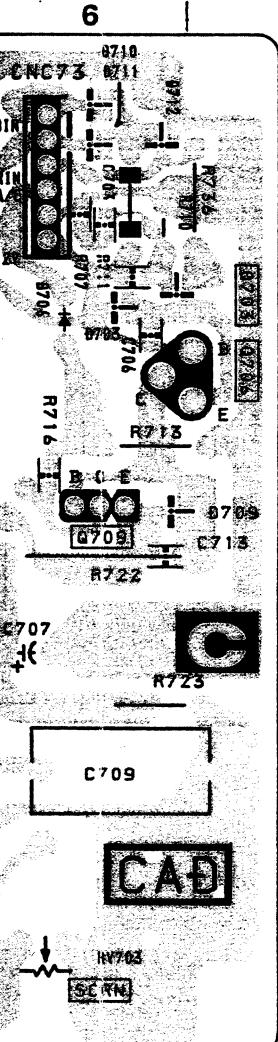
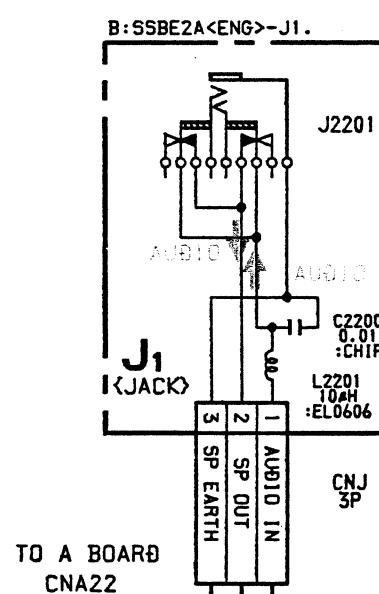
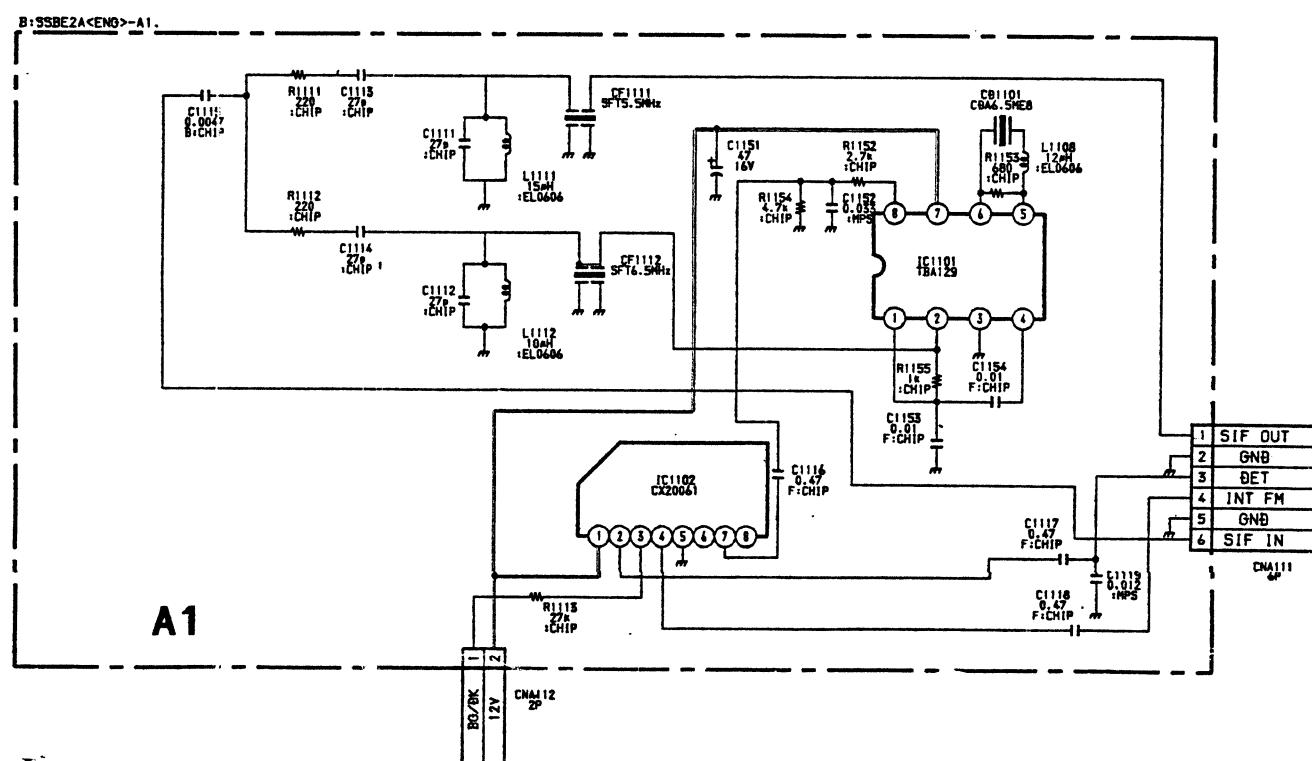
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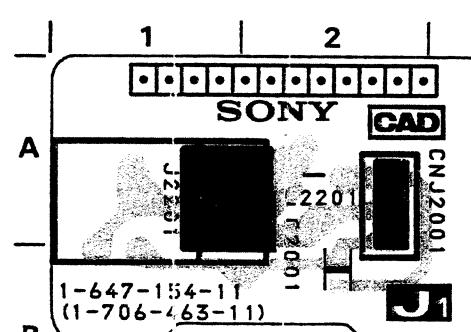
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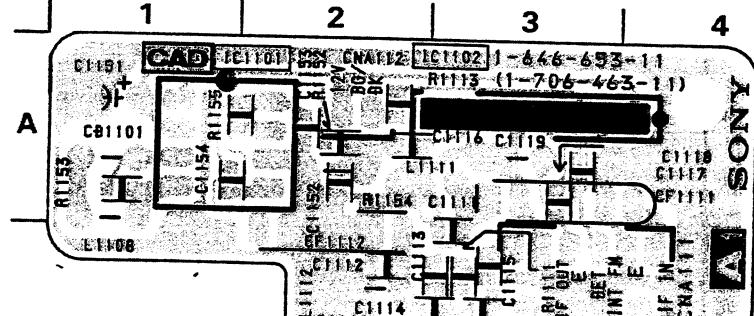
28



- J1 Board -



- A1 Board -



SCHEMA ELETTRICO DEL GRUPPO ALTA FREQUENZA TIERE 1-0544 (BT=3C 301)

